ELECTRICAL WEST

Customer Goodwill

"There are just two things to keep in mind regarding customer relations. First give the customer a square deal. Second, see that the customer knows he is receiving a square deal. All the rest is detail. The public utility square deal may be defined as rendering service of standard quality at reasonable rates, with courtesy."

—Addison B. Day

[From Metropolitan Life Insurance Company's "Executive Service Bulletin."]

September, 1934
McGraw-Hill Company of California
Twenty-Five Cents Per Copy

Buying Power Is Coming Back!

EDISON'S GREATEST ADVERTISING CAMPAIGN PROVES PEOPLE WILLING TO SPEND

•

August has witnessed Edison's greatest investment in cooperative advertising with conspicuously successful results for merchants and manufacturers.

It has proved conclusively that the public is willing and able to buy when product, prices and terms are right.

This is cheering news for the electrical industry in Southern California. Record sales made at a season when people are not generally in a buying mood, can only mean that business will be steady and profitable during the Fall and Winter.

Southern California Edison Company plans to keep steadily at the vigorous program it has carried out all year in behalf of dealers in its territory.

SOUTHERN CALIFORNIA EDISON COMPANY LTD.

Edison

ELECTRICAL WEST (with which is consolidated The Journal of Electricity), September, 1934, Vol. 73, No. 3. Published monthly by the McGraw-Hill Company of California, 883 Mission St., San Francisco, Calif. Entered as second class matter at the post office at San Francisco under the Act of March 3, 1879. Printed in U.S.A. Subscription rate in U.S. and U.S. possessions, $2 per year; Canada, $2.50 including duty; all other countries $3 gold (thirteen shillings). Single copy, 25c.

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the New ELECTRICAL WEST

Volume 73 — No. 3
for September, 1934

The Editors Think Out Loud

High Voltage

TWINNING proclivities of various breeds of livestock have been the subject of lively controversy in the letters' section of the magazine, "Time." In a recent issue of "Time Letters Supplement" one writer makes a startling statement. He says:

"At the Tyler Ranch near Roseville, Placer County, where the power lines of the Pacific Gas and Electric Co. pass through the ranch, the remarkable increase attracted sheep men to the great lamb crop. This in turn has made Dixon, Solano County, the center of the ram industry. Here the Pacific Gas and Electric Co. have their distributing plant, where all the high power lines center to be stepped down and distributed. The influence of these power lines is an established fact. Dixon-bred rams bring a premium."

If this phenomenon is true, we may expect to see substation yards populated with all varieties of animals of all ages. And if their is doubt, it at least constitutes a reasonable research project for some of the Committees on the Relation of Electricity to Agriculture.

▼

Sure Cure

AMONG the forest of cures for the depression, coming from amateur and official brain trusters, there is one that deserves far more consideration than it has received. Perhaps it was one of the many things that Herb Barre, of Southern California Edison, hoped to do had not death called him to other plans. At least it will be listed as one of his brilliant bon mots, the kind of witty commentary on men and affairs that was so characteristic of him and for which he will be long remembered. The Herb Barre cure for the depression was this:

The government will issue bonds, printed with disappearing ink on disintegrating paper, which will be sold to the people. With the money thus obtained credit will be extended to foreign nations with which to buy American goods. The money from the bonds will be paid to the manufacturers for the goods, and will in turn be used by them to pay American workmen and buy American raw materials. Then the American goods will be loaded on boats and shipped to the foreign lands. But instead of delivering them, the ships will be sunk in mid-ocean.

Thus the foreign countries will still have a demand for goods, which is unsatisfied, and the process can be repeated over and over again. The government can forget the first batch of bonds which will have disappeared by then, and launch a new batch. After all, what will the investors care, they have had employment and business, and will have more in prospect. The foreign governments would not repay the debts anyway, and in this way they will not get mad at America for insisting on payment and quit ordering American goods. Thus, all economic and political problems can be solved in one stroke.

Trouble has been that in the past America has only gone part way in this scheme. It should have sunk the ships. The mistake made was in delivering the American goods, thus shutting off future demand, and stopping production of more. The borrowing of money on bonds and extending of credit has been working fine, even without disappearing ink. Cancellation of the bonds is more subtle. It is being done by cutting the gold value of the dollar in half and making even that half irredeemable in gold. But it will all come to the same end.

Yes indeed, we should have sunk the ships.

Dirty Linen

IF the electrical industry is in the U. S. government official doghouse, not so is the laundry industry. Tide magazine reports that the Laundryworkers National Assn. has it from the T.V.A. that no government funds will be used for the financing of washing machine purchases, thus barring washers from the selling program which includes ranges, refrigerators and other home equipment at low payments and long terms. Laundry owners are thus assured that the government will not compete with them.

Yet just how consistent is this reasoning? Why demand low rates and low cost appliances for a group of people of such low income that the government must help, and not also insist on helping them with the wash? Experience shows it is the family of low income that cannot afford to send out laundry which benefits most from a washer. The little motor does the back-breaking labor that the woman, not the laundry, must perform otherwise. Looks as though the Tennesseans had been given an unclean new deal in that one.

▼

Anomoly

WASHINGTON dispatches announce that David Lilienthal of TVA has gone to England to make an intensive study of the British Grid System with the idea of formulating a similar program as a part of the government's power policy. In 1929 Sir Andrew Duncan, chairman, and Sir Archibald Page, chief engineer and general manager, of the British Central Electricity Board, spent several weeks on the Pacific Coast studying the interconnected hydroelectric systems of the major utilities.

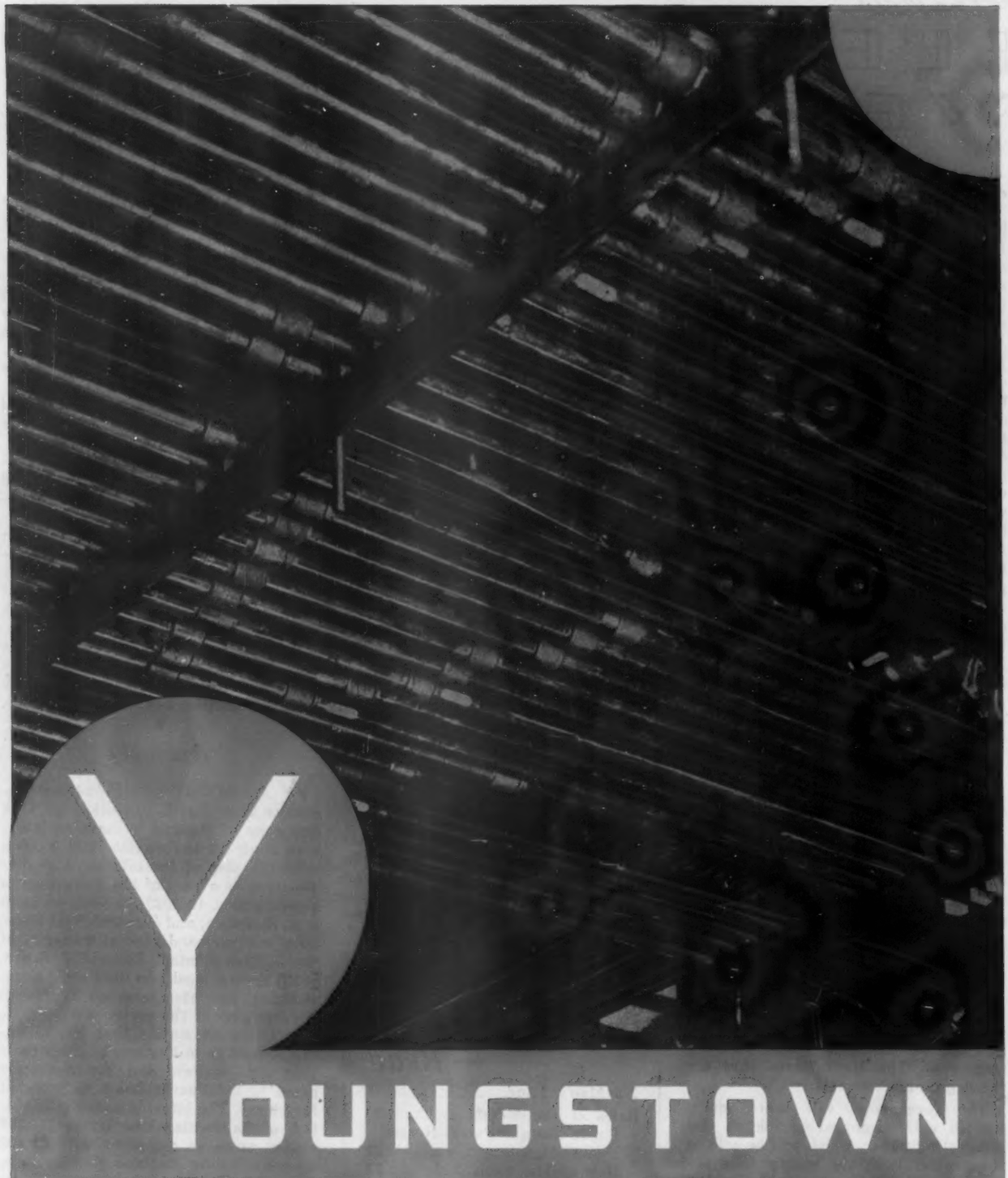
It seems anomolous that Mr. Lilienthal should go to England to study facts that Sir Andrew and Sir Archibald came to the Pacific Coast to learn at first hand. The interconnected grid system of California alone serves 158,297 square miles as compared with 50,328 square miles for England. Can the British system be so much superior to our American developments?

▼

A SAN FRANCISCO family on the relief rolls, it was discovered recently, had secretly obtained employment and hence was able to support itself, but still continued to accept the cash relief checks from the city which it was using to buy an electric refrigerator. Believed the ads which tell how an electric refrigerator pays for itself, no doubt.

— *Read*

No Man's Land 19
Sales of the Month 20
Puget Sound Water Heater Campaign 22
How to Use Sales Aids 24
N.R.A. Developments 29
The Month in Pictures 30
Engineering & Construction of the Month 32
Circuit Breaker Modernization 32
Electricity—Servant and Bodyguard 36
Motor Forum 38
What's New? 42
Manufacturers' Directory 52
Editorials 62



Whether in the simplest or most complicated electrical installation, Youngstown Buckeye Conduit invariably produces unsurpassed results.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon and Alloy Steels

General Offices - YOUNGSTOWN, OHIO

Buckeye

CONDUIT

BLACK ENAMELED - ELECTRO or HOT DIPPED GALVANIZED

ANNOUNCING!

A NEW 2-IN-1 ENCLOSED CUTOUT..

THAT INDICATES LIKE THIS..
(VISIBLE FROM GROUND)

OR DROPS OUT COMPLETELY LIKE THIS . . . . . .

WHICHEVER YOU PREFER

This cutout has many other improved features. It saves time in detecting blown fuses and restoring service. It is now available in a 60 ampere, 5000-volt rating, and additional ratings are to be announced later.

This new cutout is meant to supplement, rather than to supersede, the popular and accepted line of G-E enclosed cutouts. Ask your G-E representative for further information, or send for Bulletin GEA-1993, which gives complete descriptive and operating data. General Electric, Dept. 6B-201, Schenectady, N. Y.

340-9

GENERAL ELECTRIC

Look into it!

L-M

LIGHTNING ARRESTERS IN "PYREX" GLASS BODY

Why guess - know that your arresters are in prime condition!

You can give L-M Type "C" Arresters with transparent "Pyrex" glass body the same inspection as your other distribution equipment. They are modern arresters, include advanced design features.

Available at present for 3000/5000 V grd., 1000/3000 V non-grd. systems, other sizes will be ready shortly.

Thank you L-M

LINE MATERIAL CO

SOUTH MILWAUKEE, WISCONSIN, U.S.A.

Reproduction of an advertisement in July 21st Electrical World

"PYREX" is a trade mark and indicates manufacture by . . .

CORNING GLASS WORKS
CORNING, N. Y.

Announcing! Brand-new 1935 beauties!

Gears in the G-E Washers are so perfect in tolerance that the machine is as silent as a kitten's purr.

General Electric has scored another knockout!

You'll say so yourself when you see this new and complete line of General Electric home laundry equipment.

And so will your customers as they admire these new and revolutionary washers and ironers—designed, engineered and guaranteed by General Electric.

Modern in their design, these new G-E Washers and Ironers have style and beauty and color to recommend them.

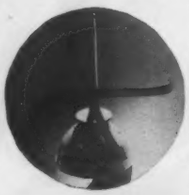
The marvelous work that they do, so effortlessly, so speedily, so economically, is easily demonstrated.

They are simple in operation . . . sturdily built . . . long-lived . . . Every model has a completely silenced ¼ h. p. General Electric motor. Motors never require oiling. All have easy rolling rubber composition casters (sized to different models). All Washers have 8½ ft. all-rubber waterproof cord with rubber plug (approved by Underwriters). And, of course, *all feature the famous General Electric Activator*—an exclusive G-E selling feature!

They offer you a range of models appealing to every individual need and purse. Impressively advertised, too, in the leading national magazines.

Suggested Eastern List Prices are from $49.50 to $149.50. All prices are slightly higher west of the Rockies.

Dealers: Write J. M. Wicht, Manager, Home Laundry Equipment Sales, General Electric Company, Section H-719, Merchandise Dept., Bridgeport, Conn. for full details of the new G-E Home Laundry equipment line and for cooperative sales and advertising plan.

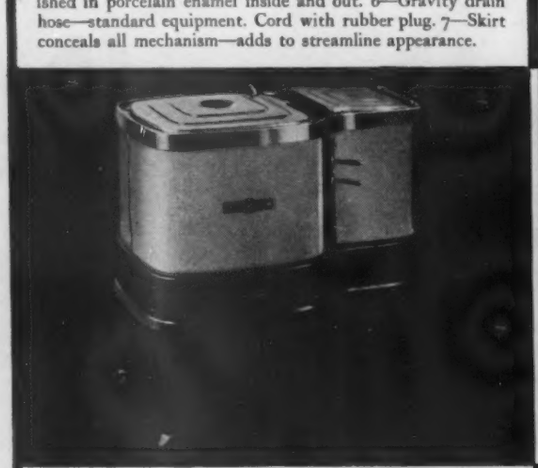


NO OILING! The mechanism of the new General Electric Washer is simple for there are only 4 moving parts and the General Electric ¼ h.p. motor is permanently lubricated—no oiling!—hardened steel cut gears are perfect in tolerance—machine is practically noiseless. And the wringer gears are also permanently lubricated.

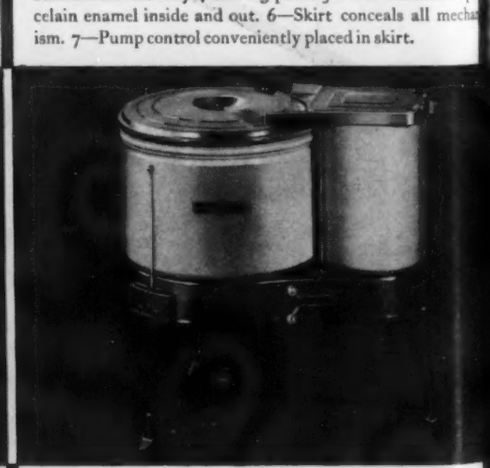
ONE-CONTROL WRINGER Only one control instead of the usual four or five—it starts and stops the rolls; applies and releases pressure; directs the drainboard; offsets the upper roll for easier feeding of cloth and on the De Luxe style the drainboard folds up when not in use protecting the rolls from dirt and dust.

GENERAL ELECTRIC WASHER—MODEL AW-21—1—Capacity 6 lbs.—14½ gallons of water. 2—One Control Wringer, applies and releases pressure; starts and stops rolls and directs drainboard. Quickly taken apart for cleaning. 3—Equipped with G-E Activator, washes clothes as individual pieces. 4—Mechanism has only 4 moving parts. 5—Tub finished in porcelain enamel inside and out. 6—Gravity drain hose—standard equipment. Cord with rubber plug. 7—Skirt conceals all mechanism—adds to streamline appearance.

GENERAL ELECTRIC WASHER—MODEL AW-22—1—Capacity 7 lbs. of dry clothes, 16 gallons of water. 2—Equipped with direct drive impeller-type pump—empties tub in 2 minutes. 3—One Control Wringer, applies and releases pressure; starts and stops rolls and directs drainboard. 4—Mechanism has only 4 moving parts. 5—Tub finished in porcelain enamel inside and out. 6—Skirt conceals all mechanism. 7—Pump control conveniently placed in skirt.



GENERAL ELECTRIC WASHER—MODEL 2-G—1—G-E Activator assures gentle washing action. 2—Blue porcelain enamel tub with splash rim adds rigidity and prevents wet floors. 3—8 lb. capacity. 4—Conical shaped super spin-basket damp dries all laundry. 5—Control panel and starting switch conveniently located. 6—Friction drive, impeller-type pump.



GENERAL ELECTRIC WASHER—MODEL 3-G—1—Washes each piece individually. 2—Has porcelain enamel tub—seated in rubber insulation to prevent vibration. 3—Super spin-basket has smooth finish—protects clothes. 4—Friction drive, impeller-type pump empties tub in 2 minutes. 5—Spin basket cover acts as drainboard.

NEW GENERAL ELECTRIC

PRINT IN BINDING

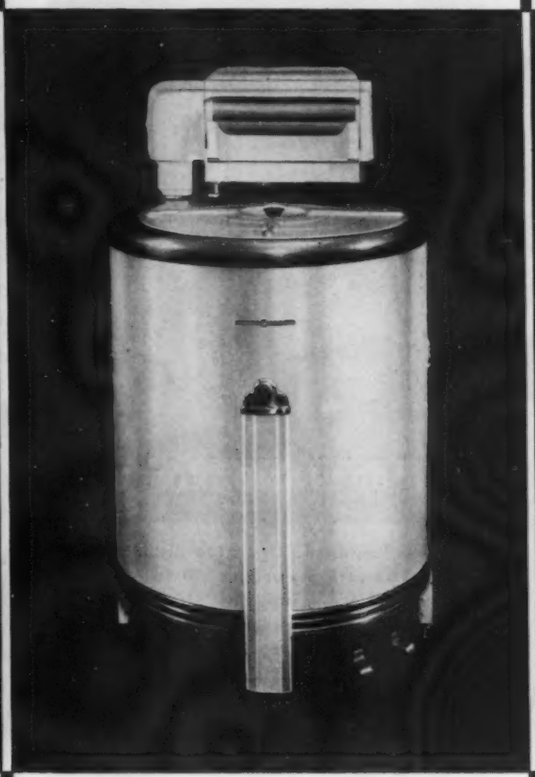
General Electric designed throughout!

SMARTEST LOOKING WASHERS MADE! General Electric has brought the foremost design of fine modern furniture into these new washers. All moving parts are completely covered to smother sound. When these General Electric Washers are not in use they make a useful utility shelf.

FOOT CONTROL! For many years housewives have been troubled with intricate controls. The new General Electric foot Control requires no stooping to start or stop the motor. Or to pump out dirty water. For this is all managed by a touch of the foot on the pedal. General Electric is first to offer this complete simplified foot control.

TEMPERATURE CONTROL The new temperature indicator on th General Electric De Luxe Model tell the exact temperature of the suds Thermostats tell when the water is jus right for (1) woolens (2) silks (3) linen (4) cottons. This is a new Genera Electric feature. No other line o washers has this indicator.

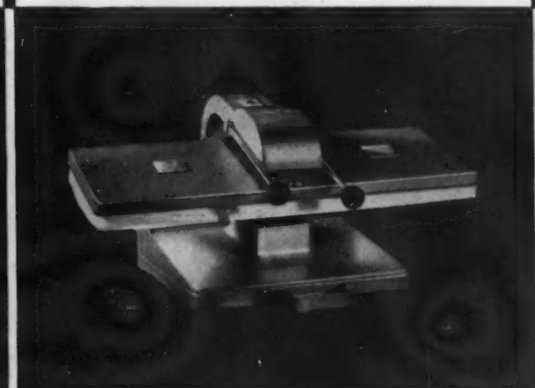
ENERAL ELECTRIC WASHER—MODEL AW-23—1— pacity 8 lbs.—17½ gallons of water. 2—De Luxe type One ntrol Wringer, applies and releases pressure; starts and ps rolls; directs drainboard. 3—Drainboard folds up when in use covering and protecting rolls. 4—Equipped with vity drain hose. (Equipped with pump at slightly higher t). 5—Tub finished porcelain inside and out. 6—Special sh rim guards against spilling water. 7—Mechanism has 4 moving parts. 8—Skirt conceals all mechanism.



GENERAL ELECTRIC WASHER—MODEL AW-24—1— Designed in new modern lines by General Electric. 2—Has 9 lb. capacity, 18 gallons of water. 3—De Luxe one control Wringer—applies and releases pressure; starts and stops rolls, directs drainboard. 4—Drainboard folds up when not in use covering and protecting wringer rolls. 5—Equipped with friction drive, impeller-type pump—empties tub in about 2 minutes. 6—Foot control pedals. 7—Steel Cabinet casing covers wash tub and wringer housing shaft.

GENERAL ELECTRIC WASHER—MODEL AW-25— De Luxe square cabinet unit, designed by Ray Patten, well known industrial designer. 1—9 lb. capacity—18 gallon water. 2—Starting switch panel and temperature indicator—shows correct water temperature for silks, woolens, cottons. 3—De Luxe One Control wringer applies and releases pressure starts and stops rolls, directs drainboard. 4—Drainboard fold up when not in use, covering and protecting rolls. 5—Equippe with direct drive, impeller-type pump. 6—Foot contro

"Now is the time to buy"
eneral Electric is first again with Washers that are silent and Ironers that have never been equalled.



PORTABLE FLATPLATE IRONER—MODEL AF-5— 1—Small portable flatplate ironer designed for small homes and apartments. 2—Weighs 28 lbs. 3—Has 263 sq. inches of ironing surface. 4—300 lbs. of pressure. 5—2 Calrod heating units supply heat to ironing shoe. 6—Has temperature indicator, aluminum shoe, moisture trap, inclined ironing buck.

AUTOMATIC FLATPLATE IRONER—MODEL AF-10— 1—Aluminum shoe. 2—Has 300 sq. inches of ironing surface 3—Pressure of 350 to 400 lbs.—3 Calrod heating units—thermostats. 4—Operated by new principle the G-E Thrusto 5—Pressed steel table with folding side leaves and lap board 6—Has special Ruffle Iron for ironing ruffles.

WASHERS AND IRONERS

ARVIN FAN-FORCED ELECTRIC HEATERS

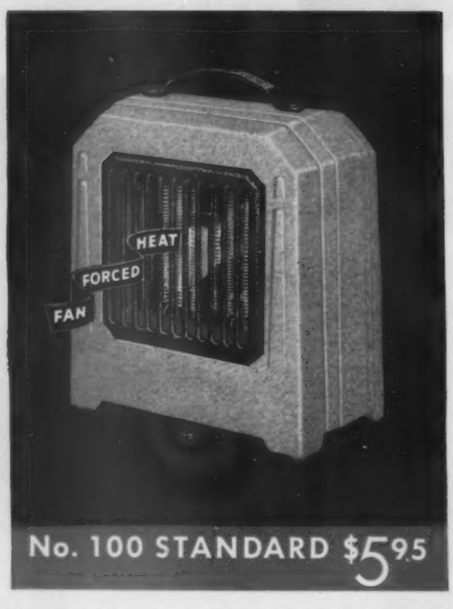
PORTABLE HEAT

IN ITS SAFEST AND MOST ATTRACTIVE FORM

Big Appeal to Mothers for Baby's Bath or Nursery

NEEDED BY EVERYONE FOR INSTANT, AUXILIARY WARMTH WHEREVER THERE IS 110 A.C.

Although the Arvin Fan-Forced Electric Heater is backed by national magazine advertising, there probably is no household convenience that advertises *itself* like this splendid electrical appliance. It is so efficient—so handy and handsome—that people who see it in operation in other homes, offices, etc., want one for their own use.



No. 100 Standard. Operates on 110 to 125 volts, alternating current, 50 to 60 cycles. Uses about 9½ amps. at 110 volts. Size: 9½″ x 5″ at base. Height, 11″. Weight, net 6¼ lbs. Packed, approximately 7¼ lbs.

No. 200 DeLuxe. Operates on 110 to 125 volts, alternating current, 50 to 60 cycles. Uses 11 amps. at 110 volts. Size: 10″ x 5½″ at base. Height, 13″. Weight, net 9 lbs. Packed, approximately 11 lbs.

The Arvin picks up the cold, dead air and turns it into healthful circulating warmth—quickly, quietly and *safely*. It solves the problem of extra or temporary heat any place where 110 A.C. is available.

The immediate period just ahead, before furnace fires are started, is made-to-order for early Arvin Fan-Forced Heater sales. Get your stock in now and build up real volume and profits. Call your Arvin jobber or mail the coupon below, now.

Arvin Fan-Forced Electric Heaters approved by Good Housekeeping Institute .. Underwriters' Laboratories

Tested and Approved — Good Housekeeping Institute

Noblitt-Sparks Industries, Inc.
Columbus, Indiana

Please send full information about Arvin Fan-Forced Electric Heaters—the complete advertising program—and the name of a nearby Arvin jobber.

Name.....

Address.....

.....

California Representative: E. L. JORDAN, 316 Commercial Street, Los Angeles

CLASS OF SERVICE DESIRED			
DOMESTIC			
MORE LOAD		NIGHT STORAGE	
BETTER LOAD FACTORS		REDUCED SERVICING	
DIVERSITY		GREATER DURABILITY	
OFF PEAK		SATISFIED CUSTOMERS	
CHECK THE THINGS YOU WANT WESTINGHOUSE RANGES, WATER HEATERS AND CAMPAIGNS GIVE THEM ALL			

Westinghouse
TELEGRAM

CHECK
R. M.
TIME
9 a. m.
RECEIVERS NUMBER
4.1

THE FOLLOWING MESSAGE IS THE ANSWER TO YOUR REQUEST TELEGRAPH FOR SAMPLES

MANSFIELD, OHIO

YOU HAVE WANTED AN AUTOMATIC ELECTRIC RANGE AT A PRICE WHICH WOULD CRACK OPEN YOUR BIG MASS MARKET STOP HERE IT IS IN BEAUTIFUL FULL SIZE MOST POPULAR CONSOLE TYPE STOP INCORPORATES REVOLUTIONARY NEW CONSTRUCTION STOP ALSO COMPANION WATER HEATER STOP FULL INFORMATION ON FOLLOWING PAGES

WESTINGHOUSE ELECTRIC & MFG. CO.
MERCHANDISING DEPT.

The Range that will

A TRIUMPH OF WESTINGHOUSE ENGINEERING

THE Westinghouse

Cardinal

AUTOMATIC ELECTRIC RANGE

$61.25

LIST PRICE

F. O. B. MANSFIELD

● Almost unbelievable! A high quality, full-size automatic electric range of the most popular type for little more than a good oil stove and oven! Get out your tape measure and compare its size with those now on your sales floor. It is 40½″ wide, 22½″ deep, 41⅝″ high. The oven is 16″ x 14″ x 18½″. Uncrated weight 140 lbs.!! Finest, fastest open coil units ever produced . . . two 6″ 1000 W. and one 8″ 1800 W. Interchangeable with COROX Quick-cook units and Quick-Cooker. Approved by Underwriters' Laboratories. High quality you'll be proud to put on your lines; beauty that will make women proud to own it. NOW SEE THE QUALITY IN IT.

Electrify America

STRENGTH

Rigid, All-Steel Welded Construction

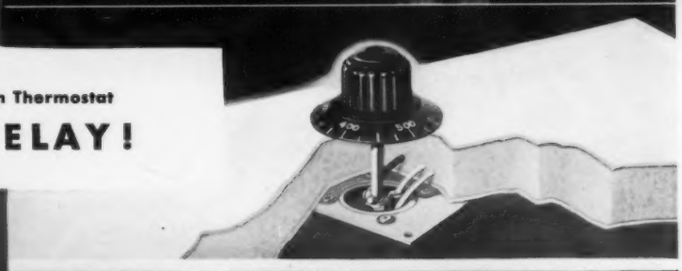
Seven men can stand on it. Once leveled in a customer's kitchen this range can never wiggle, wabble, loosen or sag and cause uneven baking. Eliminates forever this source of complaint you have experienced in selling low-priced ranges.

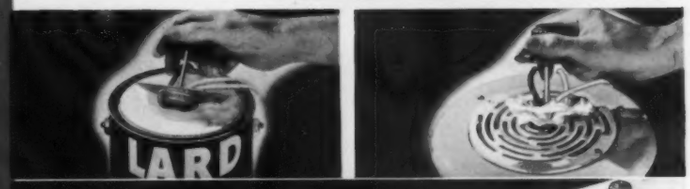
CHIP-PROOF

Amazing chemical achievement . . . the new DULUX *high-temperature* synthetic enamel. Only oven door panels and oven lining are porcelain. Here's freedom from the grief of chipping, crazing and panels that don't match. Three coats *baked on* — two at 350°, one at 285° F. Looks like porcelain, but you can hammer, bend, twist, heat it — and the gleaming, brilliant white clings to the special Bonderized steel like an integral part.

Direct Action Thermostat

NO RELAY!





You know from heavy-duty industrial applications how the famous Westinghouse Built-in Watchman disc thermostat and its DIRECT temperature control can reduce range servicing. Can even be dipped repeatedly in lard, then placed on the red hot heat of a hot plate — and its rifle-bullet speed and electrical properties are unimpaired!!! Radio type dial; 200° to 500° F., easy adjustment as close as 5° F.

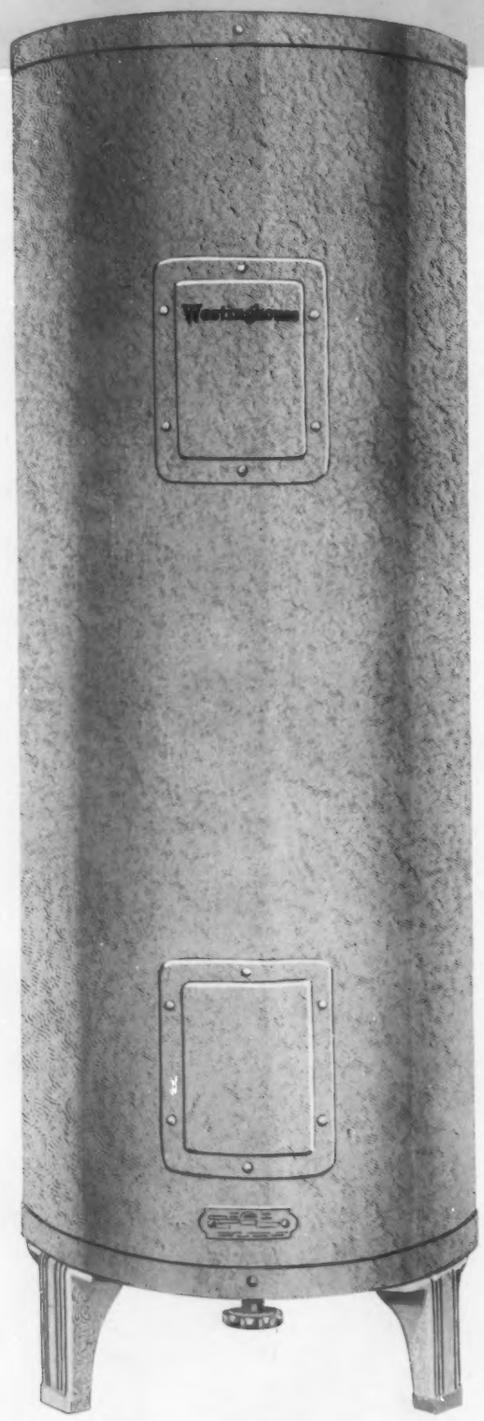
SANALLOY

Result of 8 Years' Research

Here is new richness and eye-appeal. And *again* freedom from chipping and warping . . . evidence of the way Westinghouse engineering has reduced service expense for selling to the mass market. In the development of SANALLOY, samples exposed for two years to outside weather — driving rain, beating sun, snow, sleet, freezing came through bright and clean!

Now Turn the Page for Its Amazing, New Companion Water Heater

Here's its Companion
WATER HEATER



$57.30
LIST PRICE
F. O. B. Mansfield

● A new automatic electric water heater of WESTINGHOUSE QUALITY to sell for what people in many cases pay for an ordinary, uninsulated tank and combustion heater!!! Most popular 30-gallon size; new advanced features. Think of the impetus this will give you in selling the convenience, cleanliness, healthfulness, coolness and economy of electric water heating!

The new thermostat permits 50% closer water temperature control; easily adjusted; can be made double-acting if later on two units are installed. Has the famous COROX looped hairpin element. New insulation exceeds in efficiency anything heretofore used. Approved wiring in steel duct; steel conduit box. Beautiful Morocco Krinkle finish; bright, tough, flexible; easy to clean. Deep, built-in heat trap. Installation simplified. Too many features to crowd them all here.

COMPLETE CAMPAIGN READY

A smashing campaign is ready to help you NOW . . . FAST! Newspaper ads, beautiful literature, visual demonstrators for your salesmen to use in homes, window displays, contest plans. Our field representatives will help you.

For Quick Action

WIRE, 'PHONE OR MAIL THE COUPON

W
WESTINGHOUSE ELECTRIC

Westinghouse Electric & Mfg. Co.,
Merchandising Dept., Mansfield, Ohio.

Rush samples of new Cardinal range, its companion water heater and your complete local campaign plans.

Attention of.....

Company.....

Address..... EWE

(Shipment will be made through your regular Westinghouse distributor.)

EVERY HOUSE NEEDS
Westinghouse

SCOOP!

Remarkable New Book on BETTER LIGHT BETTER SIGHT

Jumbo blow-ups of this dramatic Saturday Evening Post advertisement are available for your windows.

Here's one of the most interesting books ever written on Better Light... Better Sight. It's ready now... *right when you're making your biggest drive for increased lamp sales!*

Here's the plan...

Early in October a full page Saturday Evening Post advertisement will launch the intensive national advertising featuring this book. Millions of lamp buyers will want a copy. You can capitalize this demand by making sure that buyers receive a book bearing *your imprint.*

With every request for a book be sure to include a *Westinghouse Lighting Check Sheet.* Tell the customer to read the book, test his lighting, then bring the filled-in Check Sheet back to you. Here's a merchandising plan with a *punch!*

Get set now. 1. Order an adequate supply of "Old Eyes in Young People." 2. Order plenty of Westinghouse Lighting Check Sheets for (a) Homes, (b) Stores, (c) Factories. Westinghouse Lamp Company, 30 Rockefeller Plaza, New York City.

Westinghouse MAZDA LAMPS
TRULY ECONOMICAL

EVERY HOUSE NEEDS WESTINGHOUSE

"A·E·I·C" TYPE SERVICE ENTRANCE CABLE

UNDERWRITERS APPROVED
Listing Card 380-EO File Reference E-9198

Its Practical Advantages command your preference

Stranded conductors for flexibility
Quality rubber insulation — which strips to leave the conductor CLEAN
Color coded braid covering . . . . . .
Concentric wound bare neutral — a theft proof assembly . . . . . .
Galv. steel tape armor in direct contact with neutral conductor. Gives added mechanical protection. Easily removed
. . . because tape keeps weatherproofing pitch from spiral steel armor.
Cotton braid having a flame and moisture resisting finish, can be painted . . . . . .

- Light Weight
- Small Diameter
- Extreme Flexibility
- Fittings attached OVER weatherproof covering

GENERAL CABLE CORPORATION

SAN FRANCISCO: 30 Otis Street • LOS ANGELES: 3600 Mines Ave.

Here's what a LIGHTING PERSONNEL *can do for you!*

A homelighting representative with a Sight Meter can easily convince customers that adequate light is essential to easy, comfortable and safe seeing.

THEORIES are of little practical value until they have been proved through experience. That's why the Incandescent Lamp Department of General Electric Company has been investing both man-power and money to learn first-hand the most practical methods for developing lighting markets in key with the new Science of Seeing.

Our findings, after more than a year's intensive study with the cooperation of many representative utilities have revealed six outstanding facts of interest to those who are undertaking the serious development of lighting markets in line with the Science of Seeing. These facts, based on careful study and analysis of actual field operation, indicate what a Lighting Personnel can do for you:

1. On the average a home lighting representative may be expected to add approximately 160 KW per year.

2. The average residence customer contacted will increase KWH consumption (with or without an increase in connected load) at the rate of more than 100 KWH per year.

3. These results may be secured at a cost of from $0.59 to $0.80 per dollar of E. A. R.

4. A commercial-industrial lighting representative may be expected to add from 120 KW to 155 KW or more in new connected load per year.

5. The average commercial-industrial customer will show a 10% increase in KWH consumption per year (with or without increase in connected load.)

6. These results may be secured at a cost of from $0.30 to $0.75 per dollar of E.A.R.

The General Electric Company invites utilities who are interested in developing lighting markets in line with the Science of Seeing, to consult with us on local problems and programs. General Electric Company, Nela Park, Cleveland, Ohio.

GENERAL ELECTRIC

General Electric manufactures lamps for home lighting and decoration, automobiles, flashlights, photography, stores, offices and factories, street lighting and signs. Also Sunlight lamps.

This combination MADE NEWS

FLAME RETARDING

SAFECOTE

MOISTURE RESISTING

U. S. LETTERS PATENT NUMBERS:
1,938,828 1,772,436 1,268,000
1,798,466 1,410,790 1,438,549
OTHER PATENTS PENDING

PLUS

AMERICORE
(CODE)

AMPARAK
(INTERMEDIATE)

AMERITE
(30%)

For maximum performance in

RUBBER COVERED WIRE

ALWAYS accepted as the highest possible standard for quality—**American Steel & Wire Company Building Wires** now offer the many added advantages of **Safecote** finish. Good news, indeed, because, in addition to superior construction and proved performance of the wire itself—this remarkable finish will not carry or support flame—pulls more easily—does not soften or crack and is impervious to moisture. Furnished in all standard colors and made in sizes No. 18 AWG to 2,000,000 CM. Send for a sample—put a flame to it—bend it—and you will understand why **Americore**—**Amparak** or **Amerite**—with **Safecote Finish**—will serve you better and more economically.

1831 MORE THAN 100 YEARS of PROGRESS IN WIRE MAKING **1934**

AMERICAN STEEL & WIRE COMPANY

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

Pacific Coast Distributors

COLUMBIA STEEL COMPANY

SAN FRANCISCO LOS ANGELES PORTLAND SEATTLE

STEP UP AND GET *your* SHARE

BE MODERN
IS THE SLOGAN OF HOTPOINT'S FALL CAMPAIGN ON RANGES AND WATER HEATERS
GOVERNMENT MONEY FOR FINANCING HOME MODERNIZING

Hotpoint's new modernization campaign is ready to work for you

Hotpoint's Fall Campaign theme, "Be Modern," was selected to tie in with the Federal Housing Administration's modernization program. Millions of dollars will be made available to property owners for improvements. This means that every property owner who takes advantage of the loan will have hundreds of dollars to spend that he might otherwise not have.

Hotpoint's Fall program has been planned to help you get your share of this business. The plan books (illustrated at the right) contain thorough and common sense plans easily adaptable to the conditions existing in any territory.

Go after this profitable business now. Hotpoint will help you with merchandising plans, provide range specialists to help you get your campaigns under way, timely advertising, home economists—and a line of ranges that meet every merchandising requirement.

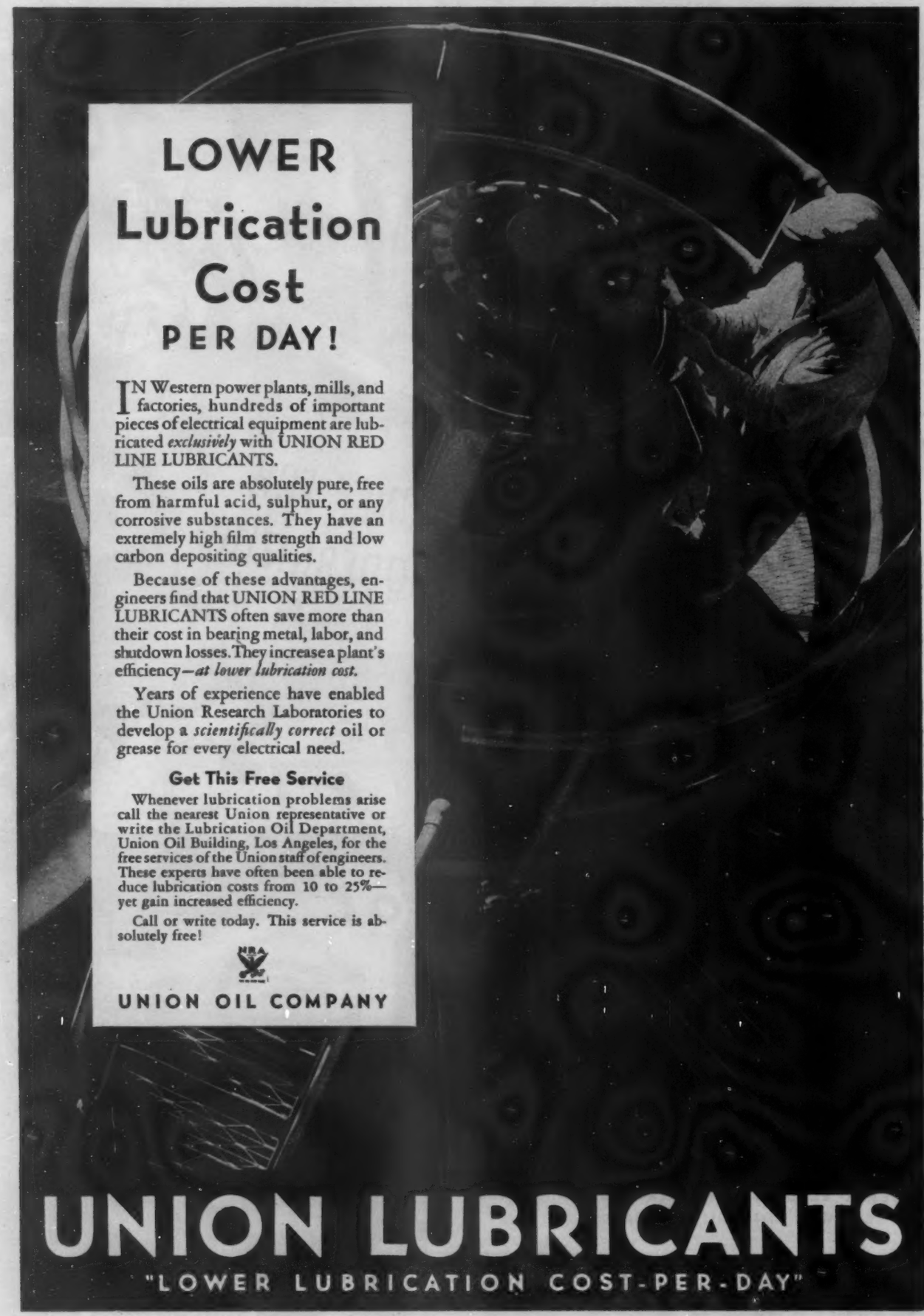
Hotpoint predicted a big range year in 1934. We predict bigger things for this Fall. Write today for the whole Hotpoint program.

EDISON GENERAL ELECTRIC APPLIANCE COMPANY, Inc.
5612 West Taylor Street, Chicago

Hotpoint

ELECTRIC RANGES AND WATER HEATERS

The Triumph—New in style, the lowest price range ever offered with such capacity, features and Hotpoint quality.


LOWER
Lubrication
Cost
PER DAY!
IN Western power plants, mills, and factories, hundreds of important pieces of electrical equipment are lubricated *exclusively* with UNION RED LINE LUBRICANTS.
These oils are absolutely pure, free from harmful acid, sulphur, or any corrosive substances. They have an extremely high film strength and low carbon depositing qualities.
Because of these advantages, engineers find that UNION RED LINE LUBRICANTS often save more than their cost in bearing metal, labor, and shutdown losses. They increase a plant's efficiency—*at lower lubrication cost.*
Years of experience have enabled the Union Research Laboratories to develop a *scientifically correct* oil or grease for every electrical need.
Get This Free Service
Whenever lubrication problems arise call the nearest Union representative or write the Lubrication Oil Department, Union Oil Building, Los Angeles, for the free services of the Union staff of engineers. These experts have often been able to reduce lubrication costs from 10 to 25%—yet gain increased efficiency.
Call or write today. This service is absolutely free!
NRA
UNION OIL COMPANY
UNION LUBRICANTS
"LOWER LUBRICATION COST-PER-DAY"

the New ELECTRICAL WEST

September, 1934

No Man's Land*

IN spite of all their mistakes, railroads created America. They established American cities. They made possible our industrial system. Most of our farms exist because of railroads. They place fresh fruit and vegetables in every market twelve months in the year. They pay good wages to more than one million people. Eighteen billion dollars of American savings are invested in railroads. The United States would collapse if the railroads did.

So, of course, we all hate railroads. Statesmen abuse railroads as a means of getting votes. Legislation designed to cripple railroads has always been popular. It is rated an act of patriotism to hamstring a railroad so that it goes broke.

In spite of all their mistakes, public utilities are largely responsible for our way of living. They have lifted drudgery from housework. They have brought comfort, leisure and convenience. They have saved eyesight. They have deterred crime by keeping cities lighted. They have done away with hot kitchens, oil lamps, ice boxes, coal furnaces, brooms, spring cleaning, old-fashioned ironing by the kitchen stove, burnt toast and a multitude more of unpleasant labors and troubles which aged women before their time and robbed them of happiness. Utilities have revolutionized industry. They have carried city convenience to farms. Their securities are owned by millions of people. They have served us well.

So, of course, everyone hates public utilities.

In spite of all its mistakes, the steel industry has built America. Its titanic enterprise has contributed the warp and woof of American prosperity. Almost everything in this country that is modern and better is so because of steel. So the best we can say for the steel industry is that it is predatory, and an oppressor of labor and feudal.

The enormous development of American industry would have been inconceivable without the vision, courage, intelligence and vast resources of American finance. More than eighty billion dollars of the people's money are soundly invested in the great industries, railroads and utilities by means of financial institutions. Finance has erected a credit structure which multiplies by many times the volume of business possible on a given amount of national capital. It maintains open markets where the day-to-day values of securities are determined, making such securities almost as liquid and marketable as a dollar bill. In spite of all its mistakes, finance organized America.

So naturally the whole country rejoices over legislation designed to clamp a set of teeth in the leg of finance.

Scattered all over America are important industries around which have grown up prosperous communities. In the aggregate, they employ millions of men and women. They are the chief support of churches, hospitals and all civic advantages. They are the backbone of business. So, many of these industries are disliked by the people, and are continuously hampered by antagonism and petty persecution.

What is the origin of this quarrel between the people and the edifice of our prosperity? Why is any demagogue who threatens to tear down that edifice fairly certain to land somewhere in Washington? Why do we hate railroads, utilities, steel, finance and many of our great industries?

It isn't merely the hatred of the common people for the wealthy. For these basic structures are owned very largely by small investors. The people either own the stock outright, or indirectly through life insurance and savings bank deposits. Losses suffered by railroads, utilities, steel, industries and finance fall heavily on the poor. Profits won enrich millions of common people.

It isn't that we hate success. It isn't because a rascal or a fool upsets an apple cart now and then. The real trouble is that the people have always been kept in ignorance regarding most utilities, steel and finance, and until recently have been told little about railroads and other basic enterprises. Serving the people, owned by the people, making money for the people, these great forces of our economic life have nevertheless remained aloof from the people. Their directors seem to have developed a strange belief that the public cannot be trusted with the facts. A few railroads have tried to establish better relations, and have benefited from the effort.

Where there is ignorance there is bound to be suspicion.

Acquaintance is the beginning of friendship.

The policy of silence pursued by railroads, utilities, steel, industry and finance has done great harm. It has left in the public mind a no-man's land of ignorance, suspicion and dislike which separates these great services from the people—a land without law or order where evil things are done.

The time has come for these services to get acquainted with the people of America and wipe out the menace of this no-man's land.

There is no earthly reason why railroads should not stand as well with the public as the automotive industry does; why every utility should not win public friendship as American Tel. & Tel. has done; why steel should be less popular than insurance companies; why finance should not share the confidence enjoyed by savings banks; or why any industry should not have the good will accorded General Electric.

All the public wants is to know the facts.

In every village, there is one man whom everybody hates. He is often the squarest man and the best citizen of the village. But he pursues a policy of silence. In time the legend grows that he is concealing things, is furtive and a schemer, is robbing the people. He is too proud to be friendly or to explain. When he makes mistakes, as any man will, they are rated as crimes. If he makes money, he is a robber in the popular fancy. If he gets into difficulties, as men do now and then, the virtuous villagers are pleased that his doom has overtaken him at last.

When railroads, utilities, steel, finance and industries have public relations like those of the hated villager, they always suffer for it. Their securities collapse more speedily in a panic. When labor troubles develop, they cannot count on the tremendous support of public sympathy. In a competitive situation, they are not fortified by popular preference.

If railroads, utilities, steel, finance and other basic industries should decide to wrap up their policy of silence and store it in the attic along with the old silk hat and frock coat, the American people would be glad to get acquainted with them and no-man's land would disappear.

*Excerpts from a recent issue of "The Wedge," published by Batten, Barton, Durstine & Osborn, Inc., New York.

Sales of the Month » » »

FRESNO now has a brand new Graybar branch, with Henry Siesbuttel, popular salesman in the Valley for years, in charge. Bert Kaufman, service supervisor, came from San Francisco to assist. It opened last month

Air Conditioning Show in Spokane Succeeds

Spokane's second air conditioning show was even more successful than its first. Staged July 24-28, it coincided with the hottest week on record in the weather bureau records of that city and, therefore, found its most appropriate appeal to the thousands of people in that vicinity. Official records show 106-deg. temperature on the top of the weather bureau office with 109 deg. recorded by many an amateur thermometer on the sidewalk. Despite this temperature inside the display rooms a differential of 20 deg. was maintained at all times.

Attendance figured from the door prize slips ran between 500 to 800 each day. A complete count of the attendance was not made but it is known that there were more visitors than at the 1932 show.

Preceded by a preview for architects, doctors, lawyers, business men, etc., the show opened Tuesday from noon to 10:00 p.m. every day. At the preview held from 7 to 9 p.m. Monday evening, 500 invitations were sent out.

The show was held under the auspices of the Spokane Bureau of Air Conditioning, of which D. H. Knapp, Great Western Fuel Co., was general chairman. H. C. Bender, Washington Water Power Co., was secretary-manager, and committees in charge of the various arrangements were operated under the following chairmen: F. E. Finney, housing; George Johnson, rules; L. K. Vallandinghom, show; Raymond Kelley, publicity.

Door prizes were advertised to attract women to the show and were featured only in the "Daily Shopper," a free circulation shopping news distributed throughout the city. Women came to the afternoon meetings and came back in the evenings bringing their husbands. Regular advertising was also carried on by radio and newspapers featuring the coolness to be found at the show.

The show paid its own way from the charges assessed against the booths. All exhibitors expressed satisfaction over the number of prospects gained and a number of sales were made. Plans are tentatively on foot for a repetition of the show again next year.

Radio talks were made by Mr. Bender featuring the effect of air upon complexions, upon comfort and other factors showing customer benefits from air conditioning.

▼

C.W.A. Appliance Survey Shows West Leads

CWA workers of the white collar class recently completed a survey in a number of sections of the country to determine the field for electrical refrigeration. In this survey the Pacific division took second place in the national figures with the West North Central Geographical division holding first rank.

The Pacific division with 70,439 domestic units in the cities surveyed was only 9,000 units behind the West North Central division. Seattle, Wash., with a total of 30,029 refrigerators, topped the list of cities, having the greatest number of domestic units installed. Minneapolis was next and Portland, Ore., third, with 23,665.

A similar survey for electrical cooking devices placed the Far West and Northwest, with the cities of Portland, Ore., Sacramento and San Diego, Calif., and Seattle, Wash., in the lead as having the largest percentage of users of cooking devices. These four cities report 60,996 out of a total of 101,309 residential units of domestic cooking equipment, leaving only 40,313 for the other 59 cities surveyed. Seattle again held the record for the country for electrical cooking units with a total of 37,889 or 37.4 per cent of all the electrical cooking units reported.

▼

San Diego Prepares for Big Appliance Show

Even with an increase of 50 per cent floor area already signed up, the second annual Electrical Exposition of the Bureau of Radio and Electrical Appliances of San Diego County, to be held at the municipal pier, Sept. 26 to 30, promises to surpass last year's national prize winning event. Full details of it will be carried in a later issue of this magazine. Suffice it to say at this time that the feature exhibits being thought up by the committees under the direction of President E. W. Meise and Secretary-manager J. Clark Chamberlain are unusual and spectacular.

Advertising, except for a brief preliminary announcement to the press, is being held for a big concentration punch during the week preceding and the week of the exposition. This explosive program is designed to focus attention on the show quickly and to keep it from becoming an old story before the show opens. Attendance of 75,000 is aimed at, and last year's record of over $15,000 in merchandise sold directly out of the show is to be surpassed.

▼

Pig to Pork Pork to a Sale

It is a real salesman who turns tragedy into good fortune. Max Hoen and Dick Wilkins, of Valley Electrical Supply Co., Fresno, were unfortunate enough to run into a farmer's pig with their automobile. Apologizing to the farmer, they were surprised to find him conciliatory. "It wasn't really your fault," the farmer said, "I've done all I could to keep those pigs out of the road. But the trouble now is, I'll have to sell this pig to the butcher for about four cents a pound and buy it back for 20 cents a pound."

That's where the salesmanship came in, for Hoen pointed out, "Why, that wouldn't trouble you if you had an electric refrigerator." After some discussion the farmer agreed and signed a contract and was delivered a refrigerator the next day.

▼

¶ **Home Owned Business** was made the feature of a display carried into the various division offices of the Pacific Gas and Electric Co. by Frank Bevan, display manager, tieing in the home owned utility with other home owned business activities of each locality.

COMPARISONS of the cost of light to familiar items, matches, candy, etc., formed one of the telling displays of Utah Power & Light at the recent Salt Lake City Modernization Exposition

Denver Launches Electric Institute

An electric institute, only one in the Rocky Mountain region, has been completed by Public Service Co. of Colorado in its headquarters, the Gas & Electric building at Denver.

This significant advancement in the educational program now being aggressively fostered in the West was dedicated when thousands of Denver customers, responding to Public Service Co.'s invitation, inspected the institute quarters Aug. 22 and 23. Previous to this public event, Electrical League of Colorado members and wives were guests at the institute Aug. 16 and 19 at special gatherings in their honor.

In addition to an auditorium which seats approximately two hundred people facing a fully-equipped stage, the new electric institute contains a model electric kitchen, a model living room and a model study, as well as a perfectly-appointed boudoir equipped with the latest tricks in indirect lighting.

Harold T. Rankin, in charge of the lighting department at Public Service Co. ,was in charge of installation work. James T. Coatsworth of the sales division has been given supervision of the new operation. Hostess and lecturer is Miss Evadna Bredehoeft, formerly with the Iowa-Nebraska Light & Power Co., Lincoln, Neb., as home lighting specialist.

At present the institute demonstrates domestic lighting and electric equipment only. Tentative plans predict that commercial and perhaps industrial exhibits will be added later.

▼

¶ **Pacific Slope Dairy Industry** will hold its 14th show for the dairy industry, at Hotel Oakland, Oakland, Calif., the week of November 11. Electricity in the dairy industry will be on exhibit in a number of booths of manufacturers making dairy electrification equipment. Refrigeration will receive particular attention this year. The cattle show is being eliminated.

▼

Westinghouse Launches New Lighting Plan

The lighting division of the Westinghouse Electric & Manufacturing Co. and the Westinghouse Lamp Co. have combined forces for concerted and scientific cultivation of the commercial and industrial lighting market. The effort is not a "spurt" but is equipped with all the necessary tools for sustained and intelligent selling of illumination.

Approximately 500 dealerships will be established to sell better lighting for factory, office, store and home. In the past, dealers have sold fixtures and equipment. In the future they will sell "lighting" according to present educational standards. Westinghouse dealers will be provided with light meters and special demonstrating equipment by which individual surveys will be made and proper needs of every room determined. Dealers will include public utilities, lighting specialty houses, contractor dealers, and stores.

Complete portfolios have been compiled for Westinghouse representatives to sell the plan to prospective dealers. They outline the potential market, the proposed activities of Westinghouse in the campaign, and the benefits which dealers will secure. "Light—The New Opportunity" is the title of the portfolio which brings out, among other things, what lighting research has discovered. Three definite steps are enumerated in today's needs: Intensity must be increased; glare must be abolished; uniform illumination must be established.

One of the most important aids to selling will be a lighting demonstration album which is divided into five chapters with appropriate illustrations covering offices, homes, industrials, stores and other users. The salesmen can instantly turn to the chapter covering his immediate prospect. A sales manual gives a page by page story of the album to aid the salesman in his presentation.

▼

S. F. Appliance Society Officers Announced

When the list of officers and directors of the San Francisco unit of the Electric Appliance Society of Northern California was first made the number of directors had not been completely decided upon. In addition to President W. K. Glasby, Schwabacher-Frey Co., and Vice-President J. T. Templeton, Sr., Colvin-Templeton Co., G. A. Milton, Pacific Gas and Electric Co., secretary of the San Francisco unit, announces the following as the complete list of directors:

Lee Blair, Blair Hardware & Electric Co.; C. O. Eberhart, Eastern Outfitting Co.; Jesse Eoff, Dimmer Hardware Co.; Guy Farwell, Sterling Furniture Co.; F. S. Fenton, Easy Washing Maching Corp.; E. M. Frellson, General Electric Supply Corp.; Irving Harris, Redlick Newman Co.; Harold Hocking, W. B. Hocking Hardware Co.; Roy Hurd, Hale Bros.; Roy Kimberlin, Graybar Electric Co.; R.F. McDonald, Westinghouse Electric Supply Co.; George Plevin, Nathan-Dohrmann Co.; Eli Popovich, The Emporium; H. B. Rector, Electric Appliance Inc.; M. H. Seid, Dowd-Seid Electric Co.; Caleb Sharrah, Thompson & Holmes; F. G. Shultz, The White House; M. G. Sues, Leo J. Meyberg Co., and Frank Talcott, Pacific Gas and Electric Co.

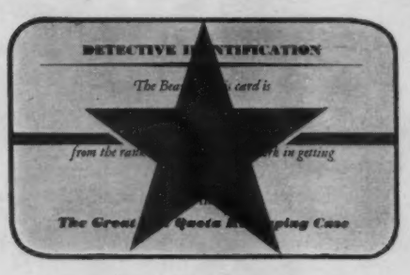
▼

¶ **"The Model Electric Farm"** is a handsome color printed broadside just issued by the advertising department of the Southern California Edison Co. Ltd., for distribution to every one of the company's rural customers and to business houses in rural areas. The main center spread in color depicts a model farm, with key numbers illustrating 100 ways electricity is serving profitably on modern farms. A particularly powerful appeal is made to the farmer in a picture captioned, "How long will YOUR back hold out?" In the company's consumer house organ, "Electrical Times," a prize of $1 is offered any consumer submitting another use for electricity on the farm not already covered in the broadside.

▼

¶ **First completely air conditioned** home in the San Joaquin Valley is now being built for Dr. F. L. R. Burks, of Fresno, Calif., Included in the equipment is a large hot air furnace and a 5-hp. compressor, both of which are located in the basement and automatically controlled so that throughout winter and summer air will be maintained at a comfortable and healthful temperature.

Kidnapped Quota Stimulates Puget Sound Water Heater Drive



Detective identification card presented to salesmen as they reached 100, 200, 300 per cent of their quota

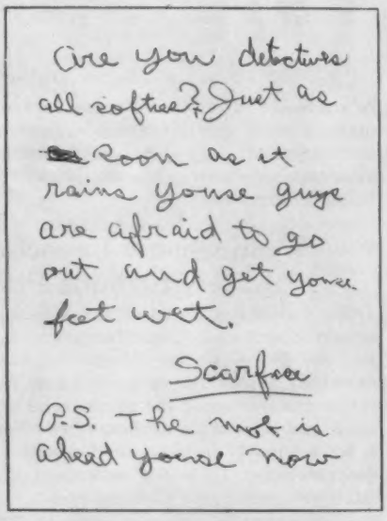
AFTER two years of experimentation and development, the Puget Sound Power & Light Co. introduced its own automatic off-peak water heater to the public on April 1. Finding no equipment manufactured at present that filled its particular needs, this company developed its own heating device. During the past year or more a number of heaters, built to the specifications of the Puget Sound Power & Light Co. engineers, were installed in western and central Washington homes. In many cases these heaters were built on the customer's premises; in some cases converting the equipment already owned by the customer. Such installations proved the company to be on the right track and also that factory equipment assembled to its specifications would be much more satisfactory.

Launching a campaign to introduce an electric appliance selling for approximately $100, in the face of present conditions, required careful planning and much courage. To make matters no better the campaign period was from April 1 to June 30 and was conducted through two months of the disastrous maritime strike on the Coast. The strike not only complicated the sale of water heaters, but also worked a very definite hardship on the delivery of equipment.

Quotas were set at 300 water heaters for 13 weeks of selling. Quotas were also set for 500 electric ranges and 300 electric refrigerators, a total of 1,100 units. The quota of 300 water heaters was reached about midway in the campaign and 693 were sold before June 30; 343 ranges and 320 refrigerators were added to the company lines; a total of 1,356 units.

Preparatory Contest

To sell the company organization on the advantages of off-peak water heating a very interesting educational program was conducted last winter. A letter writing contest on the equipment, for employees only, was announced through three issues of the company newspaper, "Water Heating." When the sales campaign started accountants, cashiers, service men, all members of the operating department and officials of the company knew the most minute details of the equipment itself and were talking the advantages of this new type of water heating service.


Are your detectives all softies? Just as Soon as it rains your guys are afraid to go out and get your feet wet.

Scarface

P.S. The mat is ahead yours now

One of the "gang notes" sent every salesman, stimulating added sales effort

Progress charts made up in cartoon map form, showing the sales record in each division

The sales campaign was conducted as if it were a kidnapping case. On April 1 each sales man received a gang note from "High Price Hank" and "Scar Fase Depression," announcing in gangland fashion, "Kid Quota" had been kidnapped. The entire sales force of 31 men was organized into a detective organization with the seven district managers as chief detectives in their districts.

Progress charts were sent to the districts showing the scene of the crime and the probable trail of the kidnappers. The first duty of each detective was to rescue "Kid Quota" from the kidnappers, which was to be accomplished by reaching 100 per cent of quota. Each sale was counted as a clue toward the rescue of quota. After individual salesmen or districts reached 100 per cent or "rescue," they were commissioned to "capture the kidnappers."

Warrants Issued

Upon reaching 100 per cent the salesman received a warrant of arrest for the kidnappers which was written by the company attorney in true legal fashion. In cases where salesmen found no clue during any two-week period, they received a legal contempt of court warrant which required them to appear before their chief detective for reprimand.

Salesmen also received promotion cards as they reached 100, 200, 300 per cent, etc. Detectives were promoted to sergeants, lieutenants, captains, and inspectors. All campaign literature within the organization was printed to compare with official police literature. Posters were sent to each of the company officers offering a reward for the capture of the kidnappers.

The 13 weeks were divided into six 2-week periods and a one-week period. In each of these periods first and second prizes were offered to the salesmen reaching the highest percentage of their quotas during that time. A grand prize for the salesman selling the highest percentage of his quota and a district prize for each of the district leaders were given as the only monetary sales incentive, since Puget Sound Power &

Light Co. salesmen work on straight salary.

Customers Write Letters

A letter writing contest was conducted in the newspapers to create interest among customers. Twenty-nine small cash prizes were given to the winners of the contest.

Special direct mail literature, store banners, cards and other window trims were used to merchandise the newspaper program in the company stores.

It is estimated this program added approximately $40,000 of annual revenue in 13 weeks, with merchandise sales amounting to approximately $163,000. Considering that no intensive campaigns had been made for two years in the Puget Sound Power & Light Co. territories, the company officials were quite pleased with this result.

The salesman winning the grand prize, Marshall Lee, of the Eastern District, sold 742 per cent of his water heater quota. The salesman standing second in the contest, Jack Spencer, of the Northeastern District, sold 666 per cent of his quota. One salesman sold 83 water heaters, ranges and refrigerators, and stands highest in the total number of units sold.

The Puget Sound Power & Light Co. automatic water heater is being sold in 30, 40, 50, 60, 80 and 100-gal. capacities. The operating department checked the requirements of every installation before a tank size was sold. The minimum size sold to a home was 40 gal. in capacity. A surprising development of the program was the great number of water heaters sold of 50, 60, 80 and 100-gal. capacity.

Insert type heaters are used in galvanized and Monel metal tanks. Two inserts are used in each heater, with one at the top of the tank and one at the bottom: both units controlled by an independent thermostat. Tanks are insulated with 3 to 4 in. of dehydrated ground cork and enclosed in steel jackets. Two other features of this heater are the heat trap and the cold water baffle plate. The baffle plate makes possible the stratification of water within the heater and does not allow cold water to lower the temperature of the water already brought up to temperature in the tank.

The company officials found that Monel metal tanks are a real sales feature and they look forward to the time when practically all water heaters installed for Puget Sound Power & Light Co. customers will be of Monel metal.

The present off-peak water heating rate in this company is 7½ mills.

▼

¶Despite the advent of gas in the Coachella Valley, electric air heating is still popular and retains its place. It has been found best for the sufferers from asthma, arthritis, etc. and as many people gather at Palm Springs for their health, electric heating persists to be the favorite form of heating during the cool winter nights.

100% Job

Bert K. Harvey believes in doing a thorough job of it. As salesman and supervisor for G. A. Munhall, dealer of Huntington Park, Calif., during the past four years he has sold a Frigidaire to everyone with whom he has done business; his grocer, gasoline and service man, insurance man, bread man, doctor, lawyer, butcher, transfer man, druggist, mail carrier and finally his jeweler so that he could buy an engagement ring to get married

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Representative Officers Named for S. D. Bureau

Representing all of the many diverse interests whose efforts are combined in the activities of the Bureau of Radio and Electrical Appliances of San Diego County, the officers for the new year whose tenure began in August, were elected at a recent meeting. President E. W. Meise, who is superintendent of merchandising for the San Diego Consolidated Gas & Electric Co., was re-elected. J. Clark Chamberlain, secretary-manager, likewise remains to direct and operate the successful sales building cooperative organization.

Officers elected for the ensuing year are: E. W. Meise, president; Harry E. Callaway, manager of Thearle Music Co., first vice-president; H. E. Brunelle, Leo J. Meyberg Co., second vice-president; and Sam Hall, president of Electric Supplies Distributing Co., treasurer. The executive committee consists of these officers and: H. C. Flinn, H. H. Horn Manufacturing Co., non-resident distributor; Frank Munroe, manager General Electric Supply Corp., local distributor; Stuart Ashenberg, manager of Southern California Music Co., major city dealer; W. E. Wendel, of H. L. Benbough Co., Ltd., department store representative; Glenn Dutton, Dutton's Radio Store, minor city dealer; Arthur Francis, Churchill & Cassou Ltd., Escondido, northern county retailer; Paul Weinstock, Electric Service Co., El Cajon, southern county retailer; Ralph French, French's Radio Service, independent service representative; and Harry Nolen, manager San Diego Auto Electric Co., automotive representative.

New Water Heater Rate Stimulates Sales

A total of 160 water heaters were sold up to August 17 in connection with the new automatic off-peak water heating service recently announced by the Washington Water Power company, according to the report of R. B. McElroy, merchandise sales manager.

A quota of 250 water heaters was set for the campaign which was scheduled to close September 1. Already a number of rural offices have reported sales in excess of quota.

The campaign features a factory built water heater with two heating elements of 1,500 and 1,000 watts, respectively, operated with a time clock and to be used with tanks of from 30 to 80 gallon capacity. Energy is furnished at eight mills per kilowatt-hour.

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Obsolescence Dooms Auto Engines

When depression-ridden farmers turned from electric motors to reconditioned automobile engines for their pumping in the San Joaquin Valley, thinking thereby to effect a saving and to save themselves from "the Power Trust," they did not reckon with obsolescence. J. P. McElroy, San Joaquin Light & Power Corp., reports that obsolescence is already causing trouble enough to bring back farmers to the use of electricity.

In a typical case, according to Mr. McElroy, the cost of replacing the electric motor was $250, installation included. An average engine is good for about 100,000 miles of operation or 5,000 hours at 20 miles per hour. Continuously operated it would be good for only 6½ months. Such engines, however, had already operated 50,000 to 75,000 miles, leaving few actual operating hours left before trouble could be experienced. In Selma district alone 21 such engines were abandoned in favor of electric motors in recent months.

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¶**Nominations** for officers of the San Francisco Bay Cities Chapter of the Illuminating Engineering Society, were made at the Aug. 24 meeting. Leo Gianini, Incandescent Lamp Division, G.E. Co., has been named to succeed Harold Gerber, department of electricity, San Francisco, as chairman. He has been vice-chairman during the past year. Fred Wellhouse, Westinghouse Electric & Manufacturing Co., is named vice-chairman, and Roy D. Myers, General Electric Supply Corp., is reappointed secretary-treasurer. The board of managers nominated consists of Harold Gerber, past chairman; Wm. P. Bear, Pacific Gas and Electric Co.; Leonard A. Hobbs, Smoot-Holman Co.; Carl O. Martin, Benjamin Electric & Manufacturing Co.; and Leland H. Brown, Stanford University. James Mundstock, The Frink Co., was the speaker at the Aug. 24 meeting, describing the lighting in the new Cincinnati Terminal Building.

How to Use Sales Aids You Already Have

By R. G. KENYON
Advertising Manager, Southern California Edison Co. Ltd.

Summary of the third lecture in the Southern California Institute of Store Management and Retail Selling, and Reprinted by permission of University of Southern California and the Southern California Edison Co. Lid., sponsors of the Institute

EVERY merchant has as his goal success. The successful merchant of our day is the merchant who is able to increase the total number of people who are familiar with his service, his goods, his work and himself. In other words, the growth of the customer group measures the success of the store. It would therefore appear that we should definitely measure the value of any of these sales aids which we are going to consider by their capacity to increase the numerical strength of our customer group. With this in mind, we will talk about ten specific sales aids which are available to every man who has a sales problem. These aids are listed as follows:

No. 1—The Inside of the Store

It is assumed that the store is well located.

It is assumed that it is clean.

It is assumed that the store is properly lighted both for day and night operation.

It is assumed that the arrangement of the merchandise is orderly and the stock of merchandise is adequate.

It is assumed that the merchandise in the store is so arranged as to be easily touched and tried by the prospective buyer.

No. 2—The Outside of the Store

It is assumed that your store has good windows.

It is assumed that the store has clean windows.

It is assumed that the store has well lighted windows and that these windows are kept lighted in the evening when the traffic justifies.

It is assumed that the windows are well dressed and that care has been used in the trimming and that the trimming has a unity of appeal.

It is assumed that the price tags are legible, but not so large as to be out of proportion to the merchandise displayed.

Widows have a definite dollar value. It is estimated that they should be worth from 12 to 40 per cent of the rental value of the store. The merchant should have this dollar value of his window always in mind and should make an effort to derive a benefit from his windows commensurate with their value.

Surveys made by reputable institutions indicate that an average of from 15 to 20 per cent of all the people in a town will pass a given store window in a 24-hour period.

Window displays should be changed at frequent intervals, depending upon the volume of traffic passing the store, but no display should be allowed to remain in without major changes for a period of more than two weeks.

No. 3—Use of Manufacturers' Sales Aids

The use of manufacturer's signs, window displays and sales literature is urged. This material is ordinarily given or sold at a very low price by the manufacturer. It lends to the store the prestige of a nationally known name. It makes the store a part of a national sales program.

The advertising done by this national selling organization can be made to point directly to your store. Your connection with the reputable manufacturer should be a source of pride to you.

No. 4—Your Own Advertising

Your own advertising, of course, is a subject about which an entire paper can very properly be written and to it one whole subject of this lecture series has been devoted. We suggest that you use the sales department of your local newspaper to help you with your own sales problems. We urge that you personalize your copy and we suggest the use of space in the want ad columns, particularly today when everyone is bargain hunting.

No. 5—Your Customer Group

Constructive use of your present group of customers is one of the most valuable methods of actually increasing the size and improving the quality of this group. A customer is, of course, defined as one who has already begun to buy from you. This customer group should be carefully analyzed. An attempt should be made to individualize them. You should classify potential needs or wants of the better customers and try to anticipate these needs. Keep this group informed about the real news concerning your store. This can be done through your regular advertising in the newspapers or through the mails.

Those customers who already owe you money offer you a special opportunity to do a real selling job. Every collection letter which goes out from your place of business should carry a definite sales slant.

The suggestion has been made that upon the completion of a service job of any size such as the wiring of a home or the sale and delivery of a large piece of equipment, that a letter be forwarded to the customer assuring him or her of your continued interest in the use of that equipment or that material and definitely placing yourself on record as standing back of your own work.

No. 6—Your Prospect Group

This group is made up of anyone who should avail himself of your facilities when, as, and if he needs them. You should make and keep a list of prospects. This list should be combed constantly, as it represents your reserve strength. Direct mail can very properly be used to keep the prospect group alive.

Use of manufacturers' prepared mailing pieces can be personalized by the inclusion with each mailing of a message of your own even though it be typewritten or printed on just an ordinary slip of paper.

No. 7—Your Trade Papers

One of the most useful pieces of modern day sales equipment is the trade paper. They are full of sales information. They supply a complete source of surveys of market conditions and of market developments. They give the news of your own industry's activity. They picture successful sales approaches and window displays. They outline successful business-getting, direct-mail campaigns in detail and they furnish many other advertising ideas which are applicable to you and your business.

No. 8—Sales Manual

A sales manual, properly made and, preferably, personally made, is the fortifying influence of the successful specialty salesman. The rather expensive, very well developed sales manuals put out by the manufacturers can be of value to you, but it is suggested that you actually sit down and make up your own sales manual. Manufacturers annually spend thousands of dollars in the preparation of sales manuals which they expect to have used in the furtherance of their own sales programs. If it is worth all this money to the manufacturer to have his own sales manual, why is it not worth while for you as a dealer to have your own sales manual which fits your particular needs and suits your particular store. The sales manual need not be expensive. A sales manual can be made up at very little cost. A 25-cent cover from one of the 5- and 10-cent stores, plus some illustrative pictures from the national advertising of the manufacturers whose merchandise you handle, plus some more picture aids cut from the manufactures' own catalogs, plus some photographs which you can take with a small kodak of your own installations,

plus some careful thought, and you will have a sales manual which will be of real worth to you as a sales manual. The making of a sales manual is in itself a helpful process for you as an individual and will make you a better salesman. The actual possession of a sales manual carrying the complete sales program, together with material which will meet any possible customer's objection, furnishes in itself a first-class moral courage developer which should be a welcome addition to his sales kit.

No. 9—Sales Schools and Sales Training Courses

In salesmanship a certain internal combustion is absolutely essential. This internal fire can only be generated by external mental aids such as can be developed by sales schools and sales training courses, either resident or by correspondence. It is essential for everyone who is involved in a selling process that he use all available material to keep his own viewpoint fresh and up-to-date.

No. 10—Take Advantage of Timely Sales Programs

Get your share. Whether it be the manufacturer who is putting on a national drive or whether it be your local utility that is putting on a drive or some specific appliance for a given length of time, tie in with these activities. When there is any activity going on in your industry, get in and get your share.

Remember we are working on the problem of increasing the number and improving the quality of our customer group, the crop upon which we must live.

Today the sales organization which is going to succeed must be willing to take on and use any kind of sales help to which it has access. The ten helps which have been outlined in this talk are all of them available to every sales organization. There are many more, less general in character, which may be of help in some specific instances. We must take advantage of every opportunity to improve our business position in this highly competitive era.

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¶"The Chance of a Lifetime" is the term given a campaign to sell 1,000 electric ranges to its employees by the Westinghouse Electric & Manufacturing Co. throughout its entire organization. All of the known methods of demonstration and sales are being used to convince the employees of the company in its various factories and branch offices that electric cookery is desirable and necessary. The plan aims to make a convert to the cause of electric cookery of every one of the buyers among its employees. The plan provides financing for the purchase on terms. It is to be carried on for the period of a month.

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¶El Paso's electric refrigeration campaign, a two-part affair, each part running six weeks, has just been completed with exceptional results. The campaign was conducted cooperatively between the power company and dealers.

"Silver Hilt" Fights Its Way Back

Phil Gough, caught by candid camera, hard at it in the drive which has won his company sales results and honors

EIGHT men journeyed to Bermuda. "It can be done."

In 1920 Listenwalter & Gough, Inc., distributors and wholesalers, Los Angeles, took unto themselves a legend. It was the legend of "The Silver Hilt." It ran as follows: "A man's bearing must announce that he is sure of himself—that's the formula. Whether you believe in a silver hilt, a brass button, your good manners, your beauty, or your discretion, it all amounts to the same—supreme confidence. With it all things are possible! **Believe** it possible —and it **can be done!**"

Since then many depression-brought conditions tested the worth of that tradition. Summer of 1934, however, finds it justified and the expedition of those eight salesmen to Bermuda as prize winners in a national Philco radio contest was testimonial to that fact.

Those attending the convention were Phil Gough, general manager, and Lou Gruner, Homer Wessman, R. B. Smith, J. J. Kerwin, Bert Fredericks, A. R. Stewart and Earl Goodman.

There is considerable drama back of this accomplishment and back of the added fact that the company now is doing a heavier volume and hiring more people than ever in its history, according to Mr. Gough. The depression took a terrific toll of the company's finances and yet, in Mr. Gough's own words, "the depression has been the biggest break for us. We feel it was our big break, because through thick and thin we have hung on to our employees, our complete sales and service organization. What I mean by the biggest break is that the depression was the cause of the disbanding and breaking down of a number of distribution organizations who were not well rooted and soundly organized. Then there was turned over to established organizations in the distribution field the opportunity to obtain the distributorship of such lines as the Philco Radio & Television Corp. and the Kelvinator refrigerator which this company now distributes in four southern California counties."

How the Philco company came to select Listenwalter & Gough is interesting. It conducted a survey in which it took a vote of 100 radio dealers in the territory, out of which 64 votes favored the Listenwalter & Gough organization. The selling and financing problems were quickly solved, with the result that the distributors worked themselves into black ink in the latter part of 1932 and now hold one of the leading places nationally in sales of this company's product.

Then the Kelvinator company came to Listenwalter & Gough and arrangements were made to handle that line also. "The company which stayed in business and kept live, kept going in spite of all conditions, made itself the focusing point toward which all factories naturally gravitated to seeing it as an outlet," said Mr. Gough. The fact that this company did not disband, did not disband its selling forces, kept pressure on the field at all times and worked harder than it had ever done in all of its life, harder than it believed could be done, finally found a reward in its present situation.

Mr. Gough believes in dramatizing the whole sales program of his institution. A dramatic presentation is called for in giving the proper sales stimulus and inspiring the crew to the hard work that is necessary. The work that it has taken is too hard for most distributors and most salesmen(he found. A rigorous program was maintained.

Even now an average of three sales meetings are held a week in the company's own store, with an average attendance of 150. The show room and foyer is transformed into a temporary auditorium. The shipping room becomes a reception room. Dealers are brought to the store and encouraged to bring their wives. In order to interest both, a social time and dance is often had afterward.

"Nobody else does this," says Mr. Gough and for this dramatic and personal touch the dealers of the Listenwalter & Gough organization sell hard and sell often.

"We have been tried in the fire," says Mr. Gough. "I believe strongly that our experience proves that an organization must not stop, must keep intact and must drive hard. It can be done."

Allocation of Electric Service Charges As a Raw Material Cost in Industry

By W. A. BOUVE
Power Specialist, Southern California Edison Co. Ltd.

AMONG the functions the utility power specialist is frequently called upon to perform is that of industrial consultant, particularly where the industrial customer does not or cannot employ an engineer. Thus it is essential that he study plant equipment and plant procedure if he is to be certain that his commodity—electric power—is economically used, thereby satisfying the customer and creating a potential market for greater use.

In his capacity as industrial consultant, the power specialist can sometimes assist the consumer in decreasing manufacturing costs by increasing production or through the proper routing of raw materials. But more than this he can create an entirely new understanding of the function of electric energy in the industrial plant. The average industrial plant manager is inclined to look upon the cost of electric power as a necessary evil, as something over which he has little or no control and consequently as an item to be charged to general overhead along with rent, taxes and insurance.

As a matter of fact electric energy is a commodity as necessary to operation and production as any of the raw materials used in making a finished product. On the basis of this fundamental the power specialist can give the consumer an entirely new appreciation of power and of its relationship to the total cost of whatever the plant is producing.

When this "raw material" viewpoint is appreciated by the consumer, he will then begin to study the use and application of power along with the other commodities necessary for his production.

With this viewpoint instilled in the consumer's mind the proper allocation of electric costs to plant production becomes of vital importance. Electric energy costs for departments, sections and even individual pieces of equipment may be obtained for the proper distribution of the electric bill and unit costs of electricity in terms of manufactured items produced are readily obtainable showing the way for increased plant efficiency and the more economical use of energy.

Power specialists can assist the customer in making such an allocation. The procedure following of course is not accurate by any means, as the only accurate method would be actually to meter the individual pieces of equipment but generally speaking the cost involved would be out of line with the results accomplished. The next best method would be to know the average kilowatt input to each piece of equipment, which could readily be obtained by tests and would possibly be accurate enough by using an ammeter under the various loadings of the equipment.

Lacking all of the preceding information the rated capacity of the equipment can be used and the final results for segregation of charges would not be far out of line, assuming of course that the demands created by the equipment were somewhat consistent in relation to their rated capacities. As a rule, hours of machine operation are kept on record or at least the operator's time is kept for the purpose of allocating the proper labor charges. With some such record as these a chart can be readily worked out for the segregation of the electric bill.

Table I shows the method used, for a typical industrial plant ignoring the actual kilowatt-hours as billed or consumed and distributing the actual bill of money according to the percentage of kilowatt-hours used as derived from the rated or test capacity and the hours of operation of the equipment. In this case the amount of the power bill is taken as $286.00.

From final results shown in the table the unit costs of production can be readily ascertained on the pound, ton, part or whatever element enters into the production program.

As stated before, this procedure is not accurate by any means, but it will help to put costs of operation and production more nearly where they belong and tend to classify electric energy as a raw material and not as a necessary operating overhead evil placed in the same category as taxes, insurance, rent and the like.

Table I—Allocation of Power Bill for Typical Industrial Plant

Hp. rated capacity	Kw. equivalent or actual input test	Hours of operation (actual or estimated)	Est. kw.-hr. consumed	Per cent of Est. kw.-hr. consumed	Distribution of bill
50 0	37.30	100	3,730	17.02	$ 48.67
100.0	74.60	200	14,920	68.09	194.75
7.5	5.59	150	839	3.83	10.95
5.0	3.73	50	187	.85	2.43
20.0	14.92	150	2,238	10.21	29.20
182.5	136.14		21,914	100.00	$286.00

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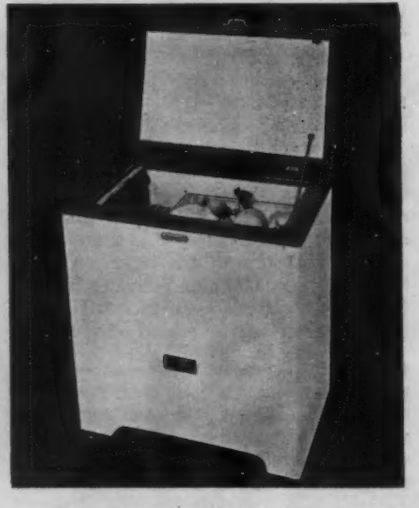

MORE LIFT-TOPS—In addition to the new TVA-model refrigerators announced recently for G-E and Westinghouse other manufacturers have joined the move to break into the lower income brackets. Here are Crosley (left), Frigidaire (center) and Kelvinator (right) lift-top machines

About Folks in the

Selling Game

Jack Douglas Heads South American Firms

J. C. Douglas, who was connected with the Hotpoint organization on the Pacific Coast for many years, is now president of Lojas General Electric S. A., of Rio De Janeiro, Brazil, and of General Electric Appliances S. A., of Buenos Aires, Argentina. Both of these organizations are appliance merchandising subsidiaries of the International General Electric Co.

Mr. Douglas recently spent three months' vacation on the Pacific Coast. He reported that while domestic electrification is making rapid strides in the South American countries, progress to date is far short of the standard accepted here in the Far West. Eighty per cent of the appliance business is in radio and refrigeration. Most makes of American refrigerators are well known in South America, he states, and at one time last winter some twelve different makes were being advertised in Rio De Janeiro newspapers.

Air conditioning is becoming quite popular and several large installations have been made in both Rio De Janeiro and Buenos Aires. Home laundry equipment, he reports, is in the pioneering stage due to the relative cheapness of servants and to the difficulty of teaching them to use washers and ironers. Electric cooking has a bright future, in his opinion, as more and more of the South American companies are establishing range rates. Mr. Douglas returned to South America via New York shortly after the first of August.

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¶**Paul Every** has been appointed the San Francisco and northern California representative of the Curtis Lighting, Inc., manufacturers of X-ray lighting reflectors. **Sam Russell**, of H. B. Squires & Co., has been appointed agent for the Inland Glass Co. Both of these lines were formerly represented by **Roy Myers**, who is now with the General Electric Supply Corp. in San Francisco.

▼

¶**A. E. Holloway**, vice president in charge of sales, San Diego Consolidated Gas & Electric Co., gave a short talk, "Electrical Merchandising of the Future as I see it," before the San Diego Electric Club, Aug. 21. The following week, **Forrest Raymond**, superintendent of advertising, talked on "Cooperative Advertising as Applied to Electrical Merchandising."

¶**W. C. Rutherford**, manager in British Columbia for the Hoover Electric Co. secured fourth place in the contest for district percentage sales increases. The contest was conducted in 48 districts in Canada and the United States. As a reward Mr. and Mrs. Rutherford went to Chicago where they joined others in a Hoover party on a tour of the Glacier National Park and the Canadian Rockies, returning to Chicago and the World's Fair via Winnipeg.

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¶**Amy L. Bidwell**, of Southern California Edison Co., Ltd., Pomona division, who was president of the Business and Professional Women's Club at Ontario, has been made president of the San Bernardino County Council of that women's organization.

▼

¶**"What's New in Electrical Manufacturing,"** was the subject of a talk given by E. J. Baughman, western sales manager, Swartzbaugh Manufacturing Co., before the Electric Club of San Diego, July 10. William H. McKinley, chief electrician, San Diego city board of public works, also gave a description of a new traffic signal devised by him and built in city shops, and now being tried out in that city.

▼

¶**Don Miller**, salesman for the San Joaquin Light & Power Corp. in the San Luis Obispo district for many years, has been transferred to the Corcoran district, where he will take the place of H. Wayne Stone, who has been moved to the Fresno office. Bob DeChaine now covers the San Luis Obispo district himself alone.

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Striped Pants but Speckled Trout

W. C. McWhinney, commercial manager, Southern California Edison Co. Ltd., knows his mountain trout as well as he does his sales of electricity. Not long ago he invaded the Trinity Alps and this is one morning's results which he holds in his hands. The trousers, however, were a Hollywood importation

¶**J. H. Warden**, sales manager for the El Paso Electric Co., El Paso, Texas, was promoted to a similar position with the Edison Electric Illuminating Co. and transferred to Brockton, Mass. He will be succeeded in El Paso by **George C. King**, formerly merchandising manager, which position he has held since September, 1930. Mr. King, a native Texan, received his schooling in Arizona and is a graduate of the U. S. Naval Academy at Annapolis, 1924.

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¶**C. J. White**, who has represented the Tork Clock Co., Inc. on the Pacific Coast for the past ten years, has been made vice-president of the company with headquarters in Mount Vernon, N. Y. Mr. White has announced that in all probability he will be the longest distance commuter in the country, since he plans to spend the Christmas holidays at his home in Long Beach and have Mrs. White spend the summer months in the East.

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¶**San Joaquin division** of the Southern California Edison Co. women's committee won first place, Santa Ana division second, and San Bernardino division third place in the contest between divisions for the best year book showing the achievements and work of the women's committees of that company. C. E. Houston, chairman, Richard E. Smith and Rose Marie Purcell were the committee judging the year book. Prizes of $20, $15 and $10 respectively were awarded to the divisions.

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¶**C. M. Bruner**, of Santa Rosa, was elected president of the newly formed Affiliated Radio and Music Dealers' Assn. of Northern California. Mr. Bruner is president of the Sonoma County Assn. of Service Dealers also.

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¶**E. T. Cunningham**, president of the RCA-Radiotron Co., recently paid a visit to California from which he originally came, and spent his vacation at Del Monte.

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¶**George Ray**, of the George T. Bauder Co., General Electric Appliance distributors in San Diego County, gave a short talk on air conditioning at the August 14 meeting of the Electric Club of San Diego. **A. I. Benedict**, lighting specialist for the San Diego Consolidated Gas & Electric Co., was chairman of the day.

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¶**Stone Electric Supply Co.** has announced that it has moved to a new and larger location at 835 South Olive St., Los Angeles. Mr. Stone is the secretary of the Southern California Chapter, N.E.C.A.

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¶**Home Service Co.**, dealers in electric washing machines, cleaners and household appliances, moved from 2112 East Fourth St., Long Beach, Calif., to newer and more spacious quarters at 2100 East Fourth St.

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¶**Rudolf Electric Shop** is a new electrical dealer establishment just opened in San Luis Obispo.

¶ **Distribution arrangements** have been completed between the Hurley Machine Co., of Chicago, and the Graybar Electric Co., Inc., involving practically nationwide handling of Hurley household washer and ironer lines, according to announcement by E. N. Hurley, Jr., president. Thor washers and ironers will be distributed by Graybar in Texas, Spokane and Tacoma, Wash., part of New York state and in the Southeast. Graybar will handle the new Meadows line of the Hurley company in practically all other sections of the country.

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¶ **J. T. Gibson**, general manager, Little Giant, Inc., Ltd., has announced that J. F. Russell has become associated with the company as one of its officers. Mr. Russell was formerly manager of the foundry division of Aluminum Co. of America in Oakland. The washing machine company has also moved to larger quarters at 4222 Hollis St., Oakland, and are making plans to double production facilities.

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¶ **Fairbanks, Morse & Co.**, of Chicago, has announced that the name of their wholly owned subsidiary, the Audiola Radio Co., has been changed to Fairbanks-Morse Appliance, Inc. The change in name was made more suitably and accurately to indicate the close affiliation of the company with the senior organization as well as to describe more completely its field of operation. The company now manufactures radio receivers and washing machines and is developing a refrigerator to place on the market in 1935.

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¶ **A-Bright Electric Co.**, pioneer electrical firm in Long Beach, recently moved from 1118 Pine Ave. to 328 East Fourth St.

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Black Bottom

New feature of the aluminum cooking vessels hitherto only possible with enamel ware is a special electrical treatment to produce a darker bottom which instead of reflecting heat absorbs it into the utensil. It is now being handled by Montgomery Bros. and displayed here by Ray Montgomery. The utensils of heavy cast aluminum and designed for waterless cookery are made by the Monarch Aluminum Ware Co., of Cleveland, Ohio, and the trade name is "ElectroWare." Montgomery Bros. are the Western distributors for this line

New Lines *You Can Sell*

Mixmaster Attachment

The Chicago Flexible Shaft Co., Chicago, Ill., has just perfected a new automatic pea-sheller attachment for the Sunbeam Mixmaster. Fresh peas are put into the sheller, the empty hulls drop out on one side and the shelled peas drop into the bowl. Stop watch tests show that the automatic device is more than twice as fast as the old fashioned hand method.—Electrical West, Sept., 1934.

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G-E Laundry Appliances

General Electric Co., Merchandise Department, Bridgeport, Conn., has placed on the market new models of home laundry equipment including a "silent" line of washers and two flatplate ironers. The washers are available in five new wringer models, ranging in clothes capacity from 6 to 9 lb., two of which are cabinet machines. In addition, there are two double-tub spin-basket machines. One of the two ironers is automatic and the other portable and both embody a number of improvements. The automatic type is operated by a G.E. Thrustor. Ironing surface has an area of 300 sq. in. —Electrical West, Sept., 1934.

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Apartment Refrigerator

General Electric Co., Specialty Appliance Sales Department, Cleveland, Ohio, has announced a new flat top model refrigerator designed primarily for apartment house installation. Of 3-cu. ft. capacity with a shelf area of 5.5 sq. ft., it requires very little kitchen space, being but 37½ in. high, 23⅝ in. wide and 20 in. deep. Ice freezing capacity is 40 cubes or 4½ lb. The exterior cabinet finish is Glyptal-baked enamel, while the interior finish is white porcelain.—Electrical West, Sept., 1934.

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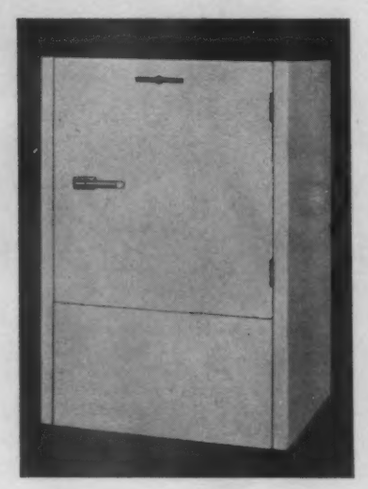

New Air-Conditioners

Frigidaire Corp. has announced the expansion of its line of air conditioning products to cover virtually every type of application in the home, office, business, hotel, hospital and industrial fields. Three new self-contained units have been added to the Frigidaire line. The smallest is a cabinet type unit with three-eights of a ton of refrigeration capacity per 24 hours, suitable for the average office or residential room. It provides cooling, dehumidification, circulation and cleansing of the air and is priced at $340, f.o.b. Dayton. The second model is of similar design but has three-fourths of a ton refrigeration capacity and is priced at $495. Largest unit in the new line is a self-contained air conditioner with two-thirds of a ton of refrigeration capacity, the functions of which include cooling, dehumidification, cleansing, circulation, heating, humidifying. It is designed to connect with the regular steam heating system and sells for $583.—Electrical West, Sept., 1934.

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Re-styled Toastmaster

The Waters-Genter Co., Minneapolis Minn., has announced to the trade a re-styled Toastmaster Hospitality Tray and a new addition to the line in the shape of a smaller, lower-priced breakfast tray. The breakfast tray includes the new- re-styled one-slice Toastmaster on an oval tray provided in three finishes, walnut, mahogany and sycamore. The wood of the tray has been treated to resist alkalis and acids and can be easily washed. Two shaped glass dishes are provided. List price complete is $15. The Hospitality Tray includes a re-styled two-slice Toastmaster with an improved flexible clock. The tray also has been re-styled with wood taking the place of chromium. The six dishes have been replaced by one large dish of five compartments. The cutting block also has been improved. List price of the tray complete is $21.—Electrical West, Sept., 1934.

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Auxiliary Heater

The Frank Adam Electric Co., St. Louis, Mo., has placed on the market a new wall type auxiliary electric heating unit known as the "Quikheter." It is designed as a convection type air circulating heater. It is available in capacities ranging from 1,000 to 3,000 watts. The exterior is finished in stainless steel, dark oxidized copper or dark bronze. A polished metal reflector supports the Nichrome heating element. The 16-gage galvanized steel enclosing box was especially designed to be built into walls or partitions.—Electrical West, Sept., 1934.

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Standard TVA Range

The Standard Electric Stove Co., Toledo, Ohio, announces a new model "Valley Quenn" electric range. Features include three burners, all 8 in. in diameter and either open or enclosed type. The oven is 16x18x14 in. with temperature control. Finish is ivory with black striping. The range is 36 in. high. Oven equipment includes two burners and broiler pan. The retail price is $77.50 f.o.b. Toledo.—Electrical West, Sept., 1934.

NRA . . .

Quick Review of Some of the Significant Decisions and Events As They Affect the West

¶**Salesman** get around. They peddle gossip as well as merchandise. NRA, alert to this word-of-mouth publicity value, has decided to enlist salesmen as messengers of good cheer. Letters to salesmen are being sent out—(if yours are not getting them, ask for them)—telling briefly good news of business recovery. Gives salesmen a cheering word to bring to customers. Is powerful evidence of N.R.A. benefits to many industries using its machinery.

¶**Violations** are few. Those violating codes throughout the country, based on complaints, are less than 1 per cent. Controversies make news, though, and news accounts tell more about violations than about peaceful compliance.

¶**"Little Fellows,"** for which this administration has so much concern, now have a forum in the Industrial Appeals Board, organized to hear individual cases.

¶**State Laws** in support of NIRA, such as that in California, are asked to be closely coordinated with national code action. Administrator Hugh Johnson and Governor Harry Moore of New Jersey effected such a coordination of the New Jersey law. To avoid duplication and confusion the same code authorities, single assessment, and same codes will prevail. Mostly a state law is to benefit small service trades which NRA had to turn loose recently.

Manufacturers

¶**Code Authority** of the Electrical Manufacturing Industry was formally approved by NRA last month. Of the list E. O. Shreve, former G. E. Westerner, is nearest approach this region has had to representation.

¶**Managing Director** of N.E.M.A. warns members that "very few newswriters have the thorough understanding of this increasingly complicated subject of code administration . . . which enables them correctly to interpret intent, means and results" and that it is inadvisable to form hasty opinions based on newspaper reports.

Wholesalers

¶**Electrical Wholesalers** code was signed by the president Aug. 13, became effective Aug. 23. (See box on this page for details).

¶**Al Nicoll,** Pacific Division president, says that a meeting in New York in September, to which a representative from this region will go, will determine code authorities and administrative set-up.

¶**Radio Wholesalers** were tusseling over some interpretations of their code, as well as methods of financing their code authority administration. A "field day" for the industry has been set by NRA for Sept. 6, in Washington. Classification of dealers, of discounts, questions of "subterfuge," relation of this code to the electrical wholesalers' and the master wholesale code, and other matters will be threshed out.

Retailers

¶**Combination sales,** such as "one cent sales," and sales involving the element of chance, will be outlawed by new amendments to the retail code.

¶**Relief** for wholesalers and retailers from multiple assessments from several codes under which the merchandise they handle may come, was given in an order from Administrator Johnson. Some way of relieving this situation is to be worked out.

¶**Inventory** time is also exempted from the consecutive hours provision of the retail code.

Contracting

¶**Code authority** for the Electrical Contracting industry was holding a meeting in Chicago as this went to press. Many details of administration, particularly of collecting assessments, location of bid depositories, and details of handling administration, over which there has been a difference in viewpoint between the practical man on the ground and the theoretical national organization planning, were to be worked out.

¶**Collective Bargaining** hearings are being held in various Eastern cities, but so far, none has been scheduled for the West, as yet. Thus are determined the wage scales applicable for particular trade areas.

Utilities

¶**Still** held up by the President is the utilities' code. In fact all actions of the President bear the earmarks of peeve at the power companies. Prior to his departure for Hawaii President Roosevelt indicated that the electric light and power code was not satisfactory to him, but it was not returned to NRA. It is understood Secretary Perkins of the Labor Department investigated the labor provisions during the President's vacation. NRA expects, however, that objections can be ironed out and approval ultimately secured.

¶**Pending approval** NRA granted utilities exemption from the requirement that they sign a certificate of code compliance in order to receive a government contract.

Electrical Wholesale Code Provides—

(As summarized by E. Donald Tolles, managing director of the National Electrical Wholesalers' Assn.)

Effective August 23, 1934—a supplement to the basic wholesale code, adopting the latter's labor provisions with the following trade practices:

Lump Sum Bidding—not permitted. Quotations must show price of each item.

Split Shipments—not permitted. Discounts must be computed on the basis of quantities shipped and/or billed to a single buyer at one time.

Free Deliveries—not permitted. Charges equal to that demanded by a common carrier must be made for delivery of merchandise beyond the metropolitan area. This area will be defined through the code authority by the code commission. "Transportation costs may be equalized as between recognized wholesaling centers."

Consignments—limited. Only products of manufacturers whose general plan of distribution is by consignment, may be consigned to customers.

Returned Goods—after 60 days not permitted. Goods returned within 60 days without fault of wholesaler or manufacturer shall be accepted only upon payment by the customer of a handling charge based on the cost for the service.

Cash Discount—limited. None to be given for payment after 10th of month following shipment. No greater discount to be given than allowed by the manufacturer of the product.

Sales Promotion Material—cost not to be absorbed. Cost of sales promotion material furnished by the manufacturer through the medium of the wholesaler to the dealer must not be absorbed.

Uniform Working Hours—By vote of the majority in number and volume, uniform operating hours for electrical wholesalers may be established in any trade area.

Budget and Assessments—Code authority will prepare a budget to cover cost of administration of the code, and basis for an assessment to meet this expense. Non-payment of assessment by a member of the trade will be a violation of the code.

GROCERY-ELECTRIC—Noyes & Sons, owners of a Red & White grocery in Paso Robles, Calif., and R. N. Chance, formerly of Guarantee Electric, operate this electric department in their grocery, enjoying fine store traffic, getting many prospects for large appliances, sales for small

The Month • Commercial and Sales . .

DIET KITCHEN—This might be a model kitchen designed to demonstrate complete electrification. Actually it is the diet kitchen in San Bernardino hospital, featuring an electrically heated steam table mounted on wheels; assuring patients of piping hot meals. Note likewise the electric range, refrigerator, mixer, toaster, percolator and kitchen exhaust fan. The electric idea "takes hold"

AIR CONDITIONING SHOW—Spokane's second air conditioning show in July provided the coolest spot in town in the hottest week in history. All products used in air conditioning, including furnaces and insulation, were on display. A preview for architects and builders brought many leads

WASHER BOOTHS—Showing modern electric home laundry equipment in either the gas- or electrically-equipped home a booth was recently featured on the floor of the Valley Electrical Supply Co., Fresno. On one side was the electric water heater and electric hotplates with a spinner type washer fitting into a compartment in the wall. Only a single tub was necessary with this type of washer. Across the aisle was the gas water heater and hotplates and a wringer type washer with double trays. An ironer was featured with the exhibit also

MODERNIZED—A 200 per cent increase in intensity resulted when T. H. Shepherd, illuminating engineer revamped the lighting for the appliance display room of the Bureau of Power & Light, Los Angeles. Flashed opal glass, mounted by chromium strips, conceal 12 40-watt lamps around each post. Sandblasted designs add to the modern effect

AUTOMATIC—All electric is a new Southern Pipe & Casing Co. plant at Azusa, Calif., with two G.E. automatic arc welding heads and traveling carriages; handling cold rolled, die-pressed steel sheets; fabricating pipe in 12-ft. sections, butt-welded together for 24-ft. sections

in Pictures
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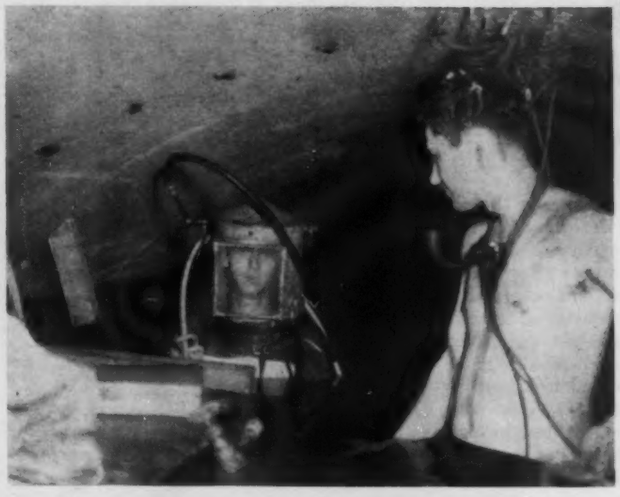
—Engineering and Construction

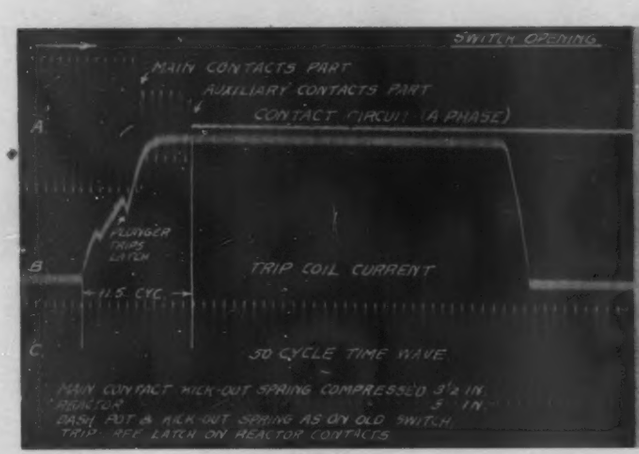


TRIED BY FIRE—J. M. Gaylord, chief electrical engineer, Metropolitan Water District, makes sure the aqueduct's transmission line insulators "can take it." R. W. Sorenson, heading California Institute of Technology electrical engineering department, has placed its high-voltage facilities at the disposal of E. W. Rockwell and B. H. Martin, of Mr. Gaylord's staff, to test 7-ft. insulator strings such as that shown above

DESERT DIVERS—"Strange things are done in the desert sun" R. W. Service might have written. Strangest is deep sea diving, to test deformation of the 16-ft. conduit sections of Metropolitan Water District's aqueduct under its normal 13-ft. water flow. Extensometer readings, in thousandths of an inch, measure diameters of the conduit under various water loads. Diving equipment was constructed in the district's shops, and a long waiting list of amateur divers was obtained from construction crew members who liked the idea of swimming just at that time of summer in the desert

DEN in Warner Baxter's electrical home, with inconspicuous control panels for operating entrance gates, master lighting, floodlights, and loud speaker for communicating with the gates or to servants

Engineering of the Month



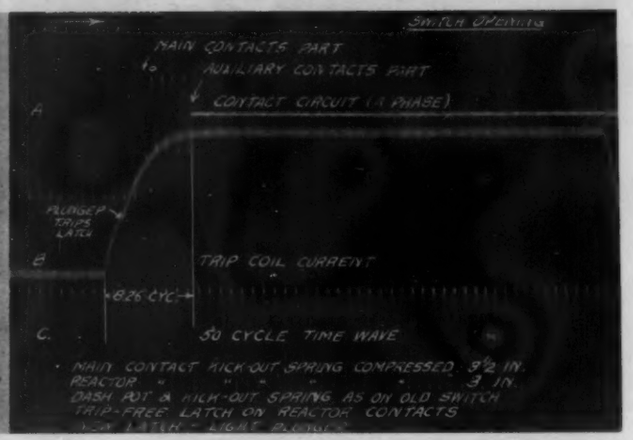


Fig. 1 (left)—Oscillograph of the tripping time of the rebuilt breaker with the new operating mechanism but with the old latch and old trip coil installed. Approximately 5 cycles is required between the time the contacts are closed and the latch is tripped

Fig. 2 (right)—The same as Fig. 1 except that the breaker has been equipped with a new compound latch and a new lightweight tripping plunger using the old trip coil. Approximately 2 cycles is required between the time the contacts are closed and the latch is tripped, a 3-cycle improvement

Decreased Operating Time Feature of Breaker Modernization

By C. C. McKEE
Junior Mechanical Engineer, Los Angeles Bureau of Power and Light

Importance of Strict Attention to Minor Details Apparent From Oscillographic Study of Trip Coil Mechanism Operation. Increased Operating Speed Improves System Stability

IN the recent modernization of twenty-six 110-kv. oil circuit breakers a number of interesting details were discovered by the engineers of the Los Angeles Bureau of Power and Light when the operation of the breakers were checked with an oscillograph. As the details of the reconstruction of the contacts and internal parts of the breakers are of limited interest, being applicable to only one type of breaker, this phase of the modernization will be treated but briefly.

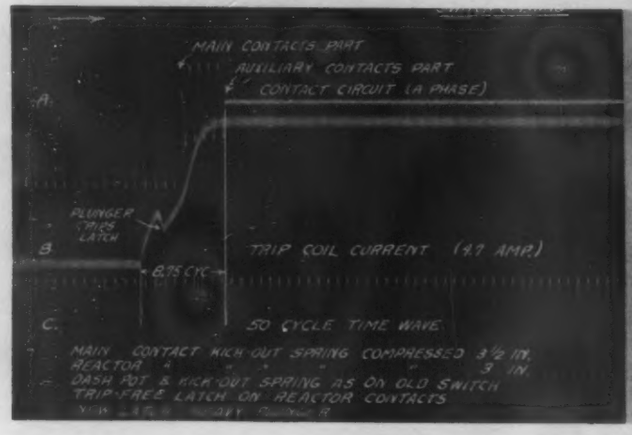
The purpose of the rehabilitation was to simplify the operating mechanism, to obtain higher speeds from the contact arms, to obtain quicker opening after the current was applied to the trip coil and to provide for a mechanical adjustment controlling the time and distance between the breaking of the main contact points and the auxiliary contact points (reactive coil points). In the rehabilitation new tanks designed to withstand an explosive pressure of at least 150 lb. per sq. in. were also provided.

The operating mechanism outside the tanks was completely redesigned to have less moving parts and less points of friction, thus making possible more spring tension to be added to speed up the opening of the switch. The reduction of linkage and friction resulted in corresponding increase of surplus power in the large switch-closing solenoid which in turn has been used in compressing spring tension in the closing stroke. The time for closing has been reduced 22 per cent and the voltage required for closing has been reduced 8 per cent as the switches now close with a minimum of 92 volts across the coil.

The increased spring tension has resulted in an increased acceleration of the switch opening and ultimate speed of the contact arm. This has resulted

Fig. 3—The same as Fig. 2 except that the heavy plunger has been substituted for the lightweight plunger. Approximately 2½ cycles is required under this condition

Fig. 4—Same as Fig. 3 except that 27-ohm resistence was placed in the trip coil circuit, reducing the current from 4.7 amp. to 2.4 amp. which in turn reduced the time of tripping to 2¼ cycles


MAIN CONTACTS PART
AUXILIARY CONTACTS PART
CONTACT CIRCUIT (A PHASE)
A
PLUNGER TRIPS LATCH
B
TRIP COIL CURRENT (4.7 AMP.)
.875 CYC.
C
50 CYCLE TIME WAVE
MAIN CONTACT KICK-OUT SPRING COMPRESSED 3½ IN.
REACTOR " " " " " 3 IN.
DASH POT & KICK-OUT SPRING AS ON OLD SWITCH
TRIP-FREE LATCH ON REACTOR CONTACTS

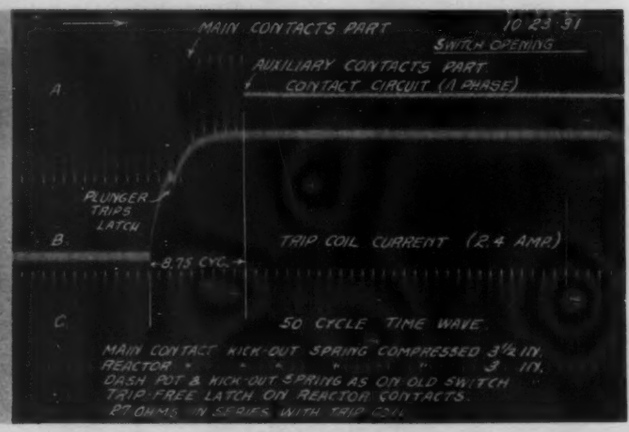

MAIN CONTACTS PART
10 23 31
SWITCH OPENING
AUXILIARY CONTACTS PART
CONTACT CIRCUIT (A PHASE)
A
PLUNGER TRIPS LATCH
B
TRIP COIL CURRENT (2.4 AMP.)
.875 CYC.
C
50 CYCLE TIME WAVE
MAIN CONTACT KICK-OUT SPRING COMPRESSED 3½ IN.
REACTOR " " " " " 3 IN.
DASH POT & KICK-OUT SPRING AS ON OLD SWITCH
TRIP-FREE LATCH ON REACTOR CONTACTS.
27 OHMS IN SERIES WITH TRIP COIL

Fig. 5—The same as Fig. 4 except the old original trip coil and plunger were replaced by an a.c. trip coil borrowed from a 440-volt transfer switch. This change reduced the time for tripping to ¼ of a cycle. The a.c. coil was not practical due to excessive temperature on d.c. operation

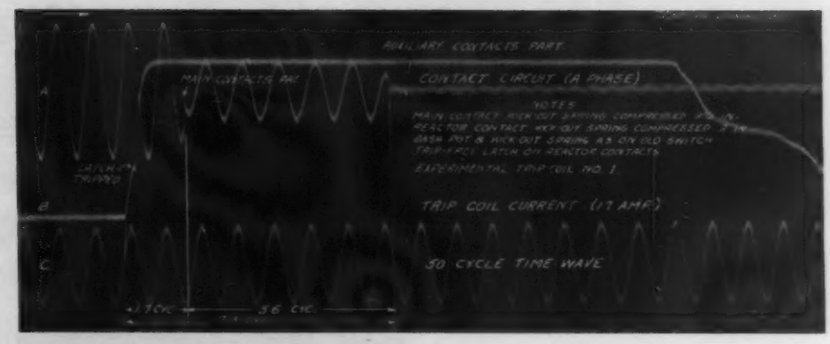
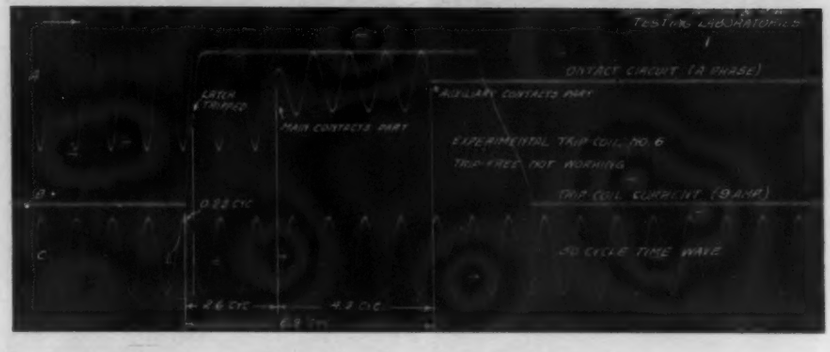


Fig. 6—Same as Fig. 5 except that the high-speed a.c. trip coil was replaced by one designed to fit the requirements of this breaker. Approximate time for trip is .23 cycles compared to the 5 cycles required for this operation on the old mechanism



In the maximum speed of breaking the arc of approximately 17½ ft. per second. The speed of the main contacts at the time of parting is approximately 6.75 ft. per second and that of the auxiliary contacts 4.6 ft. per second. This, plus the fact that the tanks have been increased in strength, materially increases the interrupting capacity of these breakers and adds to the stability of the system of which they are a part.

A particularly important feature of the modernization of these breakers was the attention which was paid to the tripping mechanism. The old mechanism was a slow cumbersome device. In the reconstruction of the breakers, quicker "getaway" was desired and was attained by designing a new compound latch with a small trip coil. A simple toggle with a trip-free latch was provided and made adjustable so that the timing of the main and auxiliary opening could be adjusted within certain limits. The compound latch has three distinct advantages; less power for tripping, increased safety (the latch withstanding much abuse), and speed of release. The best indication of the improved operation due to the new tripping mechanism is shown in the accompanying oscillographs which are taken with various combinations of the new and old mechanisms. On the old breakers approximately five cycles were required between the time the contacts closed on the tripping mechanism and the time the latch should trip out. With the new mechanism the tripping time has been reduced to .2 of a cycle.

The success of the rehabilitation is thus shown from the fact that prior to rebuilding the time required from the closing of the tripping contacts until the auxiliary contacts parted was 11½ cycles, of which 5 cycles or almost 50 per cent was absorbed in tripping the latch mechanism. On the rebuilt breaker the time has been reduced to 6.9 cycles, of which only .23 of a cycle is absorbed by the tripping mechanism. In addition, the capacity of the breaker has been increased and the possibility of accidental operation materially reduced.

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Field Power Factor Figured Without Trigonometric Tables

By E. C. GOODALE
Olympia, Wash.

Occasionally the need arises for determining in the field the power factor of a three-phase load without the use of trigonometric tables when the only instruments available are the wattmeters or watt-hour meters checking the load.

The following formulas are exact for balanced three-phase loads being measured by the two-meter or two-element meter method. The first formula given is most applicable where wattmeters only are available and the second one may be made use of whenever there are watt-hour meters.

Wattmeter method:

$$\text{P.F. is equal to } \frac{W_1 + W_2}{2\sqrt{W_1^2 + W_2^2 - W_1 W_2}}$$

Where W_1 is the watts registered by either meter (or meter element) and W_2 is the watts registered by the other meter (or meter element).

Watt-hour meter method:

$$\text{P.F. is equal to } \frac{R_1 + R_2}{2\sqrt{R_1^2 + R_2^2 - R_1 R_2}}$$

Where R_1 is the revolutions per minute or other interval of time of either meter (or meter element) and R_2 is the revolutions in the same time interval for the other meter (or meter element).

For example suppose we have a wattmeter registering the power. We temporarily cut out one meter (or meter element) and the other one registers 200 kw., forward. We then cut the other one out of service and the first one registers 300 kw., forward. The power factor then is:

$$\frac{200 + 300}{2\sqrt{200^2 + 300^2 - 200 \times 300}} = \frac{500}{530} = 94.3\%$$

Suppose one registers 100 kw., backward, and the other one 400 kw., forward. The power factor then is:

$$\frac{-100 + 400}{2\sqrt{(-100)^2 + 400^2 - 200 \times 300}} = \frac{300}{916} = 32.75\%$$

Incidentally, the numerator in this expression represents the total three-phase kilowatts of the circuit and the denominator represents the total three-phase kilovolt-amperes.

Suppose we use the watt-hour meters to determine the power factor. We may determine the watts represented by each meter (or meter element) and use the same expression as for the wattmeter or we may much more easily and simply use the disk revolutions instead.

Let us say one single-phase meter (or meter element) runs three revolutions per minute, forward and the other runs 6 r.p.m., forward. The power factor then is:

$$\frac{3 + 6}{2\sqrt{3^2 + 6^2 - 3 \times 6}} = \frac{9}{10.4} = 86.6\%$$

If one meter element (or meter) runs backward 1 r.p.m. and the other runs forward 5 r. p. m. the power factor is:

$$\frac{-1 + 5}{2\sqrt{(-1)^2 + 52 - (-1) \times 5.}} = \frac{4}{2 \times 5.57} = 35\%$$

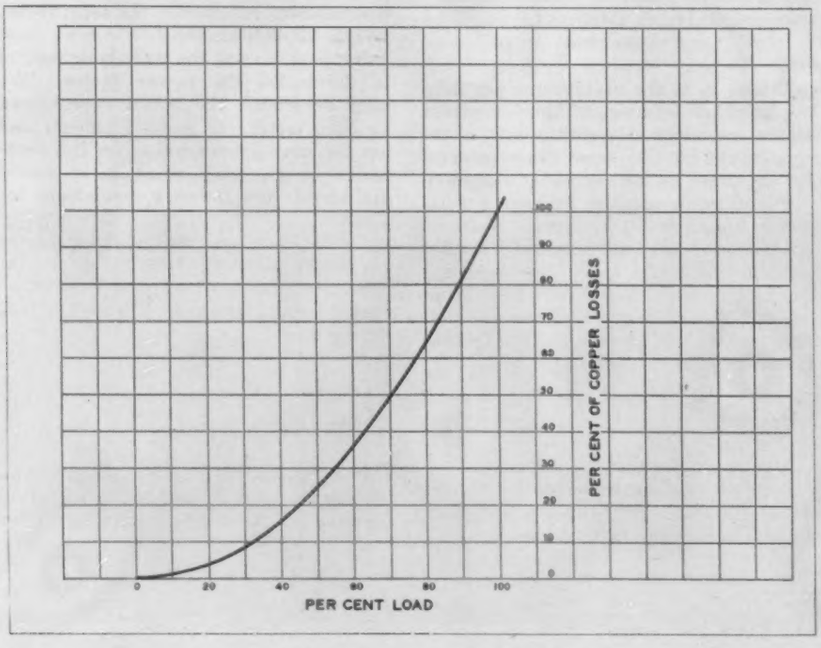
Curve Saves Time in Computing System Loses

By E. TUGBY
Olympia, Wash.

When making studies of kilowatt-hour losses over a distribution system, it is found that the losses in transformers form a considerable portion of the total. To determine kw.-hr losses in transformers graphic records of the load must be available and the iron and copper losses as given by manufacturer's test or specifications must be known. The losses are generally given as iron loss watts and total copper loss watts. To determine the copper loss at anything but full load requires plotting a loss curve for each transformer and picking off the losses at the required load or loads.

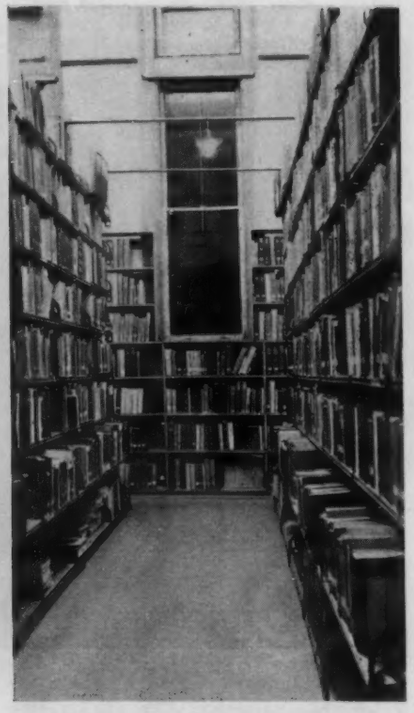
When a number of transformers are to be checked, the detail of making curves for each one entails a large amount of work. To simplify this work a curve was evolved in values of per-cent load against per cent loss. This is done by erecting an ordinate 100 units high, on squared cross section paper, plotting off as abscissa 100 units, then plotting a curve of the square of the abscissa divided by 10. The ordinates will then represent per cent of full load losses, and the abscissa represents per cent load.

It is easy then when the full load losses are known to read the per cent of full load losses for any load and at a single setting of a slide rule obtain the required loss values, thus only one curve will be needed for all transformers. This curve is based on the current squared, for with the resistance fixed for all loads, the variable is the current, which follows the curve as noted above. To illustrate, it is required to know what the copper losses are in a 2300/230-volt 150-kva. transformer. The manufacturer supplied the iron loss as 600 watts and copper loss at full load as 1,650 watts. This transformer was loaded at a root mean square load over 24 hours of 90 kva. Ninety kva. is 60 per cent of full load. On the chart the line where 60 per cent load intersects the curve gives 36 per cent of full load copper losses, which gives us 594 watts copper loss.



Curve of transformer losses plotted against per cent of full load

Book Titles No Longer Mystery



BEFORE and after correct lighting was installed in the Santa Rosa library is well illustrated by these pictures taken in one of the stack rooms. The library was previously lighted by 900 watts of direct lighting which was so badly distributed that the titles on the books could hardly be seen. Duplexalight semi-indirect units were placed between stacks, with the result well shown in these photographs by Gilbert Trosper, Pacific Gas and Electric Co. lighting engineer, who sold the installation. Stacks are very closely spaced, 4½ ft. apart, and are 7½ ft. high. Lighting load was increased to 1,800 watts with the visibility increased several hundred per cent.

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E.E.I. Awards Medal For Resuscitation

Using copper from the original mains laid down in New York City by the late Thomas A. Edison, a medal to be known as the Edison Electric Institute Award for resuscitation by the prone pressure method has been established by the E. E.I. The medal is designed for presentation to employees of member companies who, through the use of the prone pressure method, have successfully resuscitated individuals from electric shock.

Under the plans of the award the medal will be available for successful resuscitation cases occurring on or after Jan. 12, 1933, the date of organization of the institute. Conditions governing the award have been laid down by the prize awards committee of the institute.

Propellor-Type Mine Fan Is Highly Efficient

By A. D. STEWART

Westinghouse Electric & Manufacturing Co., Butte, Mont.

DURING the last year there has been in operation at the Moose Shaft of the Anaconda Copper Mining Co., Butte, Mont., a new-type fan of propeller design that shows very interesting possibilities for mine ventilation. For many years ventilation engineers have been interested in the possibilities of propeller type fans. Various designs have been tried out using propellers much the same as those used on airplanes. From one to several propellers have been mounted on a common shaft to take care of various static pressures. In general the propeller type results were rather disappointing and no great progress was made until 1928 when H. F. Schmidt, consulting engineer of the Westinghouse Electric & Manufacturing Co., published the results of his propeller experiments.

The first of the fans built to the Schmidt design were used with forced draft on marine boiler rooms, and later for ventilation of turbo generators. The same designs also worked out successfully as marine pumps. C. D. Woodward, chief engineer of the Anaconda Copper Mining Co. and A. S. Richardson, ventilating engineer, had for several years been experimenting with the possibilities of propeller type fans for deep mine ventilation, and the results from the installations of Schmidt fans on other applications convinced them that this design might solve several mine ventilation problems of importance.

In mines such as those in Butte the calculation of air resistance is extremely difficult, due to the complicated mine openings and numerous possible air passages, and ventilation conditions are continuously changing due to changes in mine workings. A very desirable characteristic of the propeller fan for these conditions is that while running at constant speed it will build up pressure to compensate for additional resistance in mine workings without any great decrease in air volume, thus allowing a leeway in initial calculations and taking care of changing conditions afterwards.

The static efficiency of the Moose fan is relatively high being 77 per cent at the rated output of 300,000 cu. ft. per min. against 9 in. static pressure. The efficiency is better than 70 per cent at any operating point between 237,000 cu. ft. per min. at 12 in. static pressure and 337,000 cu. ft. at 6½ in. static pressure.

In many installations of metal mine fans it is necessary to arrange for reversing the flow of mine air so that the air can be properly directed in case of mine fire. The propeller type fan has a special advantage in this case due to the fact that reversing housings or doors are not necessary, as the fan itself can be reversed by reversing the motor. The volume of air in reversed direction will be about 60 per cent of that in the normal direction. This answers the problem very well as the main requirement in the reverse direction is to hold pressure on the mine shaft rather than blowing down the shaft any large quantity of air.

At the time of installation there was some question as to whether it would be desirable to install a magnetic brake on the extension of the motor shaft to bring the fan quickly to rest after the power was cut off so as to allow quick reversal in case of mine fire. However, this has proven unnecessary as actual tests have shown that without any undue strain on the motor or fan it is possible to cut off power and have the fan operating at full speed in reverse direction in one minute.

The fan installed at the Moose Shaft is 6 ft. in diameter with a two-bladed propeller and operates at 1,750 r.p.m. The normal operating condition calls for handling 300,000 cu. ft. per min. against mine resistance equivalent to 9-in. static pressure. The driving motor is 700 hp., 2,200-volt, 1,750 r.p.m., direct connected to the fan shaft. The 700-hp. motor is actually larger than required to operate the fan under normal conditions, but the fan was overpowered in order to take care of any unforseen changes in operating conditions. Due to the low inertia of moving parts the squirrel cage motor with one point of reduced voltage starting through an auto-transformer brings the fan up to speed rapidly and smoothly. The control is manually operated as even though the fan may be started or reversed by a mine watchman it was not necessary to provide automatic starting. The reversing oil circuit breaker is interlocked with the starting and running breakers, but it is possible to plug the motor.

The fan is installed completely out of doors, the only enclosure being over the motor and control. Protective bearing thermostats are provided in both the fan and motor bearings and the main fan bearings are fed with oil under pressure circulated by a pump. If pressure on the circulating oil should drop below a safe limit, the motor is automatically shut down. With the equipment operating out of doors under temperatures that may be as low as 50 deg. below zero, it was necessary to make arrangements to heat the bearing oil for the main fan bearings during the time that the fan might be shut down for any reason during the cold period. This was taken care of by installing electric space heaters immediately under the oil reservoir and automatically turning these on at any time the fan is down.

The several desirable features of the propeller type fan such as high efficiency, ease of reversing and comparatively low installed cost deserves consideration on mine ventilation work where large volumes especially at higher static pressures are to be handled.

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Books . . .

You'll Need in Your Work

TELEPHONE THEORY AND PRACTICE, VOL. III, Automatic Switching and Auxiliary Equipment, by Kempster B. Miller, Fabricord bound. 6x9. 484 pages. Illustrated. First edition. McGraw-Hill Book Co., Inc., New York. $5. For sale by the McGraw-Hill Retail Room, 883 Mission St., San Francisco.

Tracing the early developments of dial telephone system, this book takes up in turn the Strowger step-by-step, panel-power driven, rotary-power driven and all-relay systems by outlining the historical backgrounds and distinctive characteristics of each and then proceeding with detailed descriptions. In separate chapters each type of equipment is described and explained togethher with their functions, including the operations and typical circuits, trunking systems, the development of machine switching, complete exchange systems, cordless "B" boards, key indicators, key pulsing and the step-by-step director. Typical numbering plans developed for exchange areas of various sizes and characteristics are thoroughly discussed. Modern power plant equipment, engineering practices, operating practice and central office distributing apparatus are treated in detail together with the various types of branch private exchange equipment. Throughout the book many illustrations and substantiating data enhance the clarity and treatment of this field of telephony.

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PRINCIPLES AND PRACTICE OF ELECTRICAL ENGINEERING, by Alexander Gray, late professor of electrical engineering, Cornell University, and revised by G. A. Wallace, associate professor of electrical engineering, McGill University. Fourth Edition. 529 pages. Illustrated. 6x9. $4. McGraw-Hill Book Co., Inc. For sale by McGraw-Hill Retail Room, 883 Mission St., San Francisco.

The fourth edition of this well known book combines the best material of the earlier editions with new developments which have taken place since the earlier printing. Primarily intended for engineering students other than electrical but who require practical working knowledge of the subject, this book covers the fundamentals of electrical theory and the characteristics and operations of electrical apparatus. Presentation is simple and clear. Over fifty per cent of the material is new. It is an excellent and thorough elementary text.

Electricity—

Servant and Bodyguard

Warner Baxter Utilizes the Full Virtuosity of Electricity to Protect Him From Prowlers as Well as Bring Him the Comforts and Conveniences of the Most Modern Aids to Living

Radio-controlled gates at each of two entrances to the estate; motor driven, controlled either by electric impulses from secretary's office, radio impulses from transmitter in owner's car. Each gate has a selective wave length; only one entrance is opened by its specific signal. Entrance stone posts contain two-way voice-communicating loud speaker, by which visitors announce themselves to the secretary before gaining admittance to grounds. Indicating lamps at several points in the house and grounds tell which gates are opened or closed. At night radio gate control also turns on floodlights illuminating driveway

PRIVATE life, to a person in public life, is obtained only at the greatest of pains. Perhaps no one in public life is so beleaguered by that public as is the moving picture star; no one finds it harder to lead a normal life in the privacy of his home. Those who do so have found it necessary to surround themselves with the protection of a large estate and numerous servants, even guards. Warner Baxter, star of the first magnitude, in a new home he has just completed in Beverly Hills, has commissioned electricity to be both guardian of his home life and of his peace, as well as servant to minister to his every comfort and well being.

Aside from the beauty of its Beverly Hills setting, its pleasing architectural lines, and the beauty of its interior, Warner Baxter's new home is distinctive for its advanced standard of electrification. In this new home electricity is utilized in every conceivable way to provide comfort, promote safety, to entertain, beautify and to reduce details of household management to a minimum. With well over 150 kw. of connected load, this home undoubtedly is the most intricately electrified residence, not only of America, but probably of the world. Electrical installation, involving much intricate control wiring and many new applications of photo-electric cell operation, was made by the G & L Electric Co., Beverly Hills.

The house itself is of middle Tudor architecture built on a 6½-acre plot of ground which has been landscaped to take full advantage of its natural beauty. A large swimming pool and tennis court are located close to the house but laid out so that their presence enhances rather than detracts from the beauty of the estate.

To describe all phases of the complete electrification of the house and grounds would involve a far-too-detailed discussion. Pictorially it is possible to show many of the electrical applications which make this house interesting to the industry, and to suggest thereby how electricity may be further applied to domestic uses by anyone.

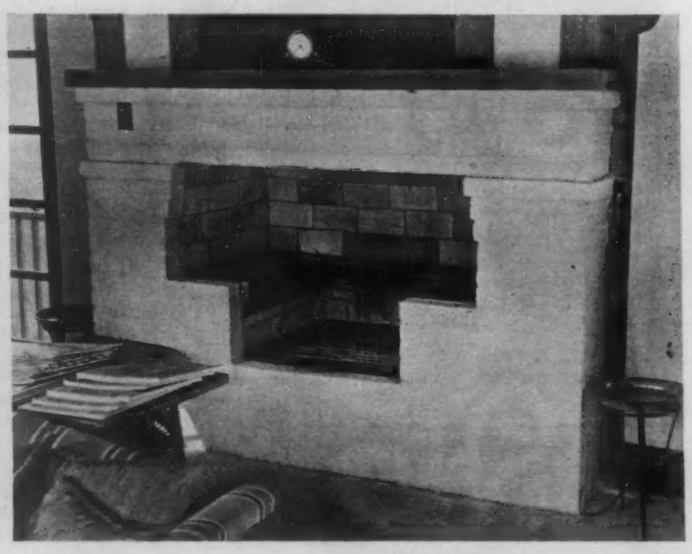
Interesting features of the establishment not shown in the accompanying photographs include 69 kw. of space heating, two water heaters rated at 50 and 106 gal. respectively, a 15-kw. steam generator, a 21-kw. range in the main kitchen and a complete electrically equipped laundry capable of providing complete laundry service for the household.

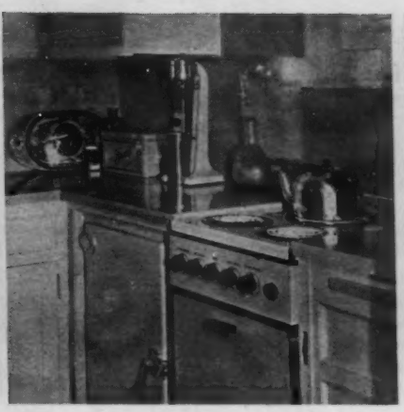
A loud speaker system replaces the conventional annunciator installation in giving orders to servants.

For the first time a complete infra-red burglar alarm system completely protects the house and grounds. The invisible (to the naked eye) infra-red rays crisscross the grounds and provide

Left: Ingenious setting for electric air heater in the main kitchen. Fan type heaters, thermostatically controlled, heat the entire house

Right: This electric barbecue pit in swimming pavilion, together with electric-steam table enable preparation of meals out-of-doors. Another such pit is located in the rock garden at the far end of the grounds





Left: Miss Olive Kerr, secretary to Mr. Baxter, at her desk. Portable loud speaker and control box on desk provides communication to, and controls operating impulses for the gates. Indicating lights show gate positions. Control box can be connected by plug to various 12-point receptacles throughout house and grounds so that details of the household management can be directed from any place on the estate

Center: Diet kitchen off upstairs sitting room. A 7½ kw. range, a refrigerator and other appliances furnish complete equipment for preparation of meals at this point. Main kitchen on floor below is similarly equipped but on a much larger scale

Right: Motor operated self opening garage doors remotely controlled

an instant, audible alarm whenever a beam is interrupted and, in addition, turn on the floodlights on the grounds around the building. The floodlighting installation includes twelve 200-watt floodlights which are automatically controlled by the burglar alarm system and also by master switches located at convenient points in the house.

The tile swimming pool has a pavilion with a fireplace and electric barbecue pit, dressing rooms, and the pool itself is illuminated both by underwater lights and floodlights. Swimming pool water is purified and heated by gas, the only non-electric fuel on the property.

A master radio and phonograph installation is installed with loud speakers and control points at five different locations throughout the house and grounds. At these control points, either the phonograph, which is stocked with 24 records and will play for 6½ hours continuously, or the radio, may be connected to the loud speakers by remote control. Remote tuning makes it possible to select any desired station on the radio from any control point.

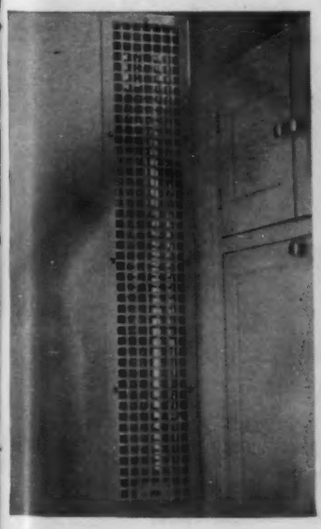
The myriad uses to which electricity has been put in this residence eliminate much of the detail and labor in the household management. Used for fuel, power, entertainment, and safety, it enhances the comfort of a beautiful home and actually enables economies by eliminating much of the work formerly requiring additional servants, and the consequent housing problems attending a large household organization.

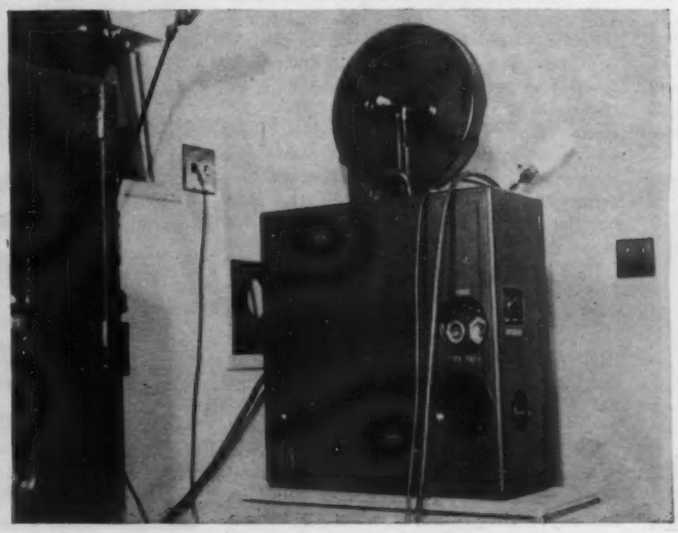
Below: Full length electric space heater installed in the bathroom replaces circulated heat and reduces the chance of chills through draft

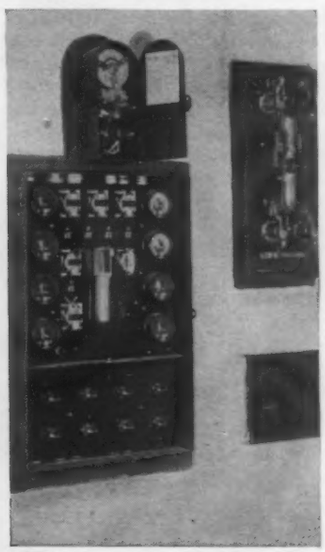
Center: Two complete sound motion picture projectors installed in special booth adjacent recreation room project through the wall onto a screen ordinarily masked by a tapestry on opposite wall. When not in use the apertures are concealed by sporting prints

Right: Control panel for infra-red burglar alarm system. Infra-red rays are projected across the grounds into photo-electric cells. Interception of any beam sets off an audible alarm, and through the relay on the right turns on floodlights. The system is automatically turned on and off at sundown and sunup by the time switch above

One of the entertainment control points, whence either phonograph or radio may be connected to the loud speakers located almost everywhere. Remote tuning makes station selection possible







Motor Forum

—An Idea Exchange

for the Industrial Man and his practical problems, either mechanical or of policy

Two Business Making Ideas of an Olympian

Gale C. Wagner, of Olympia, Wash., is not just "in" the motor winding and repair business. He has ingenuity, and utilizes it in a merchandising way. Here is one of the things he is doing at the shop of the Wagner Electric Co. It hinges upon the fact that the country around Olympia is rather low and wet and there is need for lowhead pumps, for pumping out basements, and the like. About the cheapest installation that can be had new, for that purpose runs to approximately $50.

Wagner has designed and is building a type of pumping equipment that will throw a barrel of water a minute. It can be made from junk and second-hand materials that can be secured almost anywhere, and he makes a nice profit on it at $25. He uses a Buick centrifugal circulating pump set on a sump casting. It is driven by a vertical shaft taken from a Ford, the shaft running in a piece of two-inch pipe as a standard. Above, driving the shaft is a quarter horsepower washing machine motor. The float for starting and stopping the motor is the ordinary ball float used in toilets. This is made to actuate the switch through a simple arrangement of levers. He has sold 50 of these equipments in the vicinity, and only on one or two occasions has he had to go out of town for any of the necessary parts.

Another business producer of his is pictured here. It is an attachment for the ordinary "growler" used in testing armatures. The growler, itself, he made in the shop, and it is of standard dimensions. The trouble with this, or the standard manufactured article, lies in the fact that the jaws are too far apart to permit of laying a small armature, such as is used in vacuum cleaners, between them, and have its surface make contact with the jaws. So he has made what, for lack of a better term, might be called a pair of extension jaws. These

are made of a series of laminations of stove pipe iron, riveted together. They are made up in a U-shape shown in the picture, and will straddle the jaws of the growler. Then the small armature will lay very nicely between them.

Since the other local electrical repair shops do not have anything like this, when they get one of these small armatures to work on, they send it to Wagner to test. As a result, he gets a lot of this testing business to do. Furthermore, it has become known to the public that his is the place where armatures can be tested, and people come direct to him frequently. This has resulted in his selling quite a number of new motors, where it would be cheaper than attempting to wind the old ones.

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Special Devices Made For Brewery Job

MODERN brewery installations are usually completely electrified industrial jobs with individual motor drives on all machines. When the former San Diego Ice & Cold Storage Co. and Campbell Creamery at Eighth and Imperial Aves. in San Diego was converted into what is now the Balboa Brewery, the California Electric Works made a complete electrical installation at the plant. Although a moderate sized plant, it has run at full capacity ever since it has opened and the quality of the brew has been such that the public has consumed its entire output from the very beginning.

Aside from the usual run of electrical equipment, Chuck Shoemaker, foreman for the California Electric Works, worked out a number of devices to assist in the brewing and bottling of the beer. The photographs accompanying show three of these applications. The top picture shows an ingenious lamp mounted at the end of a bakelite rod providing the inspector with a safe lamp for peering into the interior of the washed barrels to see that they are clean. The lamp is suspended from above on a counterweighted cord and as the barrels come out of the washer it is plunged into the bung at the side of the barrel for inspection of the interior.

The center photograph shows an application of the geared motor drive for extra slow speed operation of one of the large mixing vats. In addition to the reduction from the geared motor itself, the speed is further reduced by the large pinion shown in the photograph.

The lower photograph shows a device economically devised by Mr. Shoemaker for the inspection of the cleaned bottles before bottling. Three reflectors with a 60-watt lamp in each are placed behind a pane of ground glass before which all of the cleaned bottles pass to be inspected before being sent into the bottling machine.

Another device worked out was a float control valve for the filtered water plant. One night the filter plant stopped and as no warning had been given, there was no filtered water on hand for the batch on the next day. California Electric fixed up a contactor, controlled by a float in the filter water tank which now sounds an alarm if the water level gets low.

Because of the growth and additions to this plant the main switchboard was made up with ample extra capacity and space. Extra large gutters are used for buses and bus capacity is ample for present and future uses. Plenty of spare room has been allowed on the board for addition of future switches.

A novel idea which any motor specialist can employ in plants of this nature which are regular customers is the placing of a small locked box in the superintendent's office containing fuses, test lamps, solder, tape, a fuse puller and various sundry items of this kind for quick supply in case of emergency needs. This is inventoried at regular intervals and the company is billed for any items which have been used and the stock replenished.

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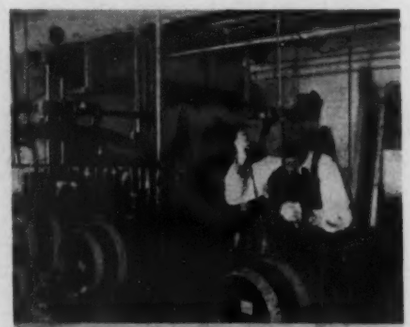

APRIL 16, 1934. DEPARTMENT OF ELECTRICITY, CITY AND COUNTY OF SAN FRANCISCO. RALPH W WILEY, CHIEF

HORSEPOWER RATED MOTOR DISCONNECT SWITCH SIZES

THE AMPERE RATING OF APPROVED HORSEPOWER RATED MOTOR DISCONNECT SWITCHES & THE CLASSIFICATION OF THE TYPE OF MOTOR SHALL DETERMINE THE CORRECT SIZE OF THE MOTOR DISCONNECT SWITCH, AS INDICATED IN THE FOLLOWING TABLES:

SIZE OF H.P. RATED DIS. SWITCH.	SQUIRREL CAGE & SYNCHRONOUS (FULL-VOLTAGE, REACTOR AND RESISTOR STARTING) SINGLE PHASE					SQUIRREL CAGE & SYNCHRONOUS (AUTO-TRANSFORMER STARTING) HIGH REACTANCE SQUIRREL CAGE			WOUND ROTOR AND DIRECT CURRENT				
	SINGLE PHASE 115 V	SINGLE PHASE 230 V	2 Ø 3 W 230 V.	3 Ø 3 W 230 V.	3 Ø 3 W 460 V.	2 Ø 3 W 230 V.	3 Ø 3 W 230 V.	3 Ø 3 W 460 V.	2 Ø 3 W 230 V.	3 Ø 3 W 230 V.	3 Ø 3 W 460 V.	D.C. 115 V.	D.C. 230 V.
30 AMP.	½ HP. 1000 RPM	1½ HP. 1800 RPM	2 HP.	3 HP.	5 HP.	3 HP.	3 HP.	7½ HP.	5 HP.	7½ HP.	15 HP.	3 HP.	5 HP.
60 AMP.	2 HP.	3 HP.	5 HP.	5 HP.	15 HP.	5 HP.	7½ HP.	15 HP.	10 HP.	15 HP.	30 HP.	5 HP.	10 HP.
100 AMP.	3 HP. 1800 RPM	5 HP.	10 HP.	10 HP.	25 HP.	10 HP.	15 HP.	30 HP.	20 HP.	25 HP.	50 HP.	7½ HP.	15 HP.
200 AMP.	—	10 HP.	20 HP.	25 HP.	50 HP.	25 HP.	30 HP.	50 HP.	40 HP.	50 HP.	—	—	35 HP.

FOR MOTORS ABOVE 50 HORSEPOWER, THE DISCONNECTING MEANS MAY BE A GENERAL-USE SWITCH OR AN ISOLATING SWITCH, PROVIDED, HOWEVER, THAT WHEN THE VOLTAGE EXCEEDS 300, THE RATING OF THE DISCONNECTING MEANS SHALL NOT BE LESS THAN 400 AMPERES.

Table which Chief Wiley of San Francisco developed to clarify the horsepower rating problem in that city

When Is a "Horsepower Rated Switch?"

Contractors and Manufacturers Ask That National Electrical Code Clarify Switch Sizes for Other Than Squirrel Cage Motor Types

●

CHANGES in design bring the need for changes in rules. So it was that in 1929 a condition long found hazardous in industrial practice was met with a change in the wiring requirements prescribed by the National Electrical Code.

With the general advent of straight across-the-line starting type of squirrel cage motors, it was not uncommon to have serious blowups of externally operated switches used as a disconnecting means for such motors when the motor stalled, or under stalled rotor conditions. The ordinary externally operated so called "safety switch" proved anything but safe, since it had primarily been designed for controlling lighting or other non-inductive loads.

In 1929 the Underwriters Laboratories, Inc., after a series of tests had been conducted by its Pacific Coast engineer, Ray J. Larrabee, Jr., using the facilities of the Pacific Gas and Electric Co. at its Emeryville yards, recognized the need for testing switches for their horsepower rating. In these tests Mr. Larrabee found only one type of externally operated switch on the market which stood up to the severe tests which were made on them. Yet these tests were no more severe than ordinary operating conditions.

Hence the Underwriters Laboratories established testing facilities at both its Chicago and New York laboratories to which manufacturers of externally operated switches now send their equipment for test. Simultaneously the National Electrical Code was revised to require that switches used as a means of disconnecting motors carry the horsepower rating of the motor to which they are connected.

In the 1933 edition of the code, Sections 1004 (e), and 1005 (d) prescribe such switches.

To determine the horsepower rating, however, Underwriters Laboratories have insisted that the maximum horsepower rating for the switch be shown on its name plate. This in turn is based on the fuse sizes contained in Column 7 of Table 1, Article 8, section 808, "For Selecting Wire and Fuse Sizes for Motor Branch Circuits."

Column 7 gives the ampere ratings for fuses for branch circuits feeding ordinary squirrel cage and synchronous motors (full voltage, reactor and resistor starting) of single phase.

Columns 8 and 9 of the same table give fuse sizes for squirrel cage and synchronous motors with auto transformer starting, and high reactance type squirrel cage motors, and for wound rotor alternating and direct current motors, in all cases requiring a lower ampere rating. Taking less starting current, these latter type motors require less fuse and branch circuit capacity.

As a result, on installations of the latter types of motors, the contractor is required to install a switch of the maximum horsepower rating, and then use fuse reducers to comply with the limits of columns 8 and 9.

Recognizing that such a condition caused confusion and added to the cost of the installation to the customer, as well as providing a bone of contention between contractors and inspectors on the job, and that the requirement as it stands was inconsistent with the actual conditions of load and wiring capacity, Ralph W. Wiley, chief of the Department of Electricity of San Francisco two months ago issued the table reproduced on this page (and first published in Electrical West in its July, 1934 issue, p. 37). This table has helped materially to clarify the matter in that city.

Manufacturers of externally operated switches on the Pacific Coast have now asked that similar clarification be made in the code itself. The confusion resulting from this little detail of codification has cost the industry a considerable sum in money, not to mention the time lost in disputes. A committee was appointed by these manufacturers to submit to the inspectors' conventions a recommendation for the clarification of this problem.

"At the present time," said Earl Browne, spokesman for the committee, "every switch is required to carry a maximum horsepower rating. But just what is a maximum rating? It is one thing for the straight squirrel cage motor and another for the wound rotor motor. We are recommending that a table, similar to that worked out by Mr. Wiley, be considered for adoption in the code."

As a further aid to the inspector and contractor in the field, he said that the manufacturers represented by his committee were willing and anxious to paste into the cover or otherwise affix to each externally operated switch a small table giving the types of motors and horsepower ratings for which that switch was suitable.

Since 1929, it was further pointed out, manufacturers generally have improved the design of their switches so that they are capable of withstanding much higher amperages. Most manufacturers it was declared, would be willing to guarantee that their switches have passed definite stalled rotor tests well above the prescribed horsepower ratings. What the trade desires is that a definite standardization be achieved, for at the present time, all manufacturers do not label their switches with the same horsepower rating for switches of the same amperage.

These recommendations have been sent to the Article 8 committee of the Southwestern Section, International Association of Electrical Inspectors. That the subject is being considered important by other regions and will be discussed in many other inspector conventions too is the word that has already reached the article committees in that region.

Practical Men » » »

C. C. Curtis Transferred To Stone & Webster

C. C. Curtis, who since April, 1931 has been a division manager for the Puget Sound Power & Light Co., has been transferred to Stone & Webster, Inc., as personnel director for that organization. Mr. Curtis has been connected with Stone & Webster enterprises since July 3, 1907, when he entered the corporation's service at Lowell, Mass. He was graduated that year from the

C. C. CURTIS

University of Michigan where he majored in mechanical engineering.

At Lowell he assisted in construction of a power station and incidental work in connection with a 1,500-kw. plant. On completion of this job he was transferred to Pawtucket, R. I. Following this he was sent to Ponce, Porto Rico, as assistant lighting superintendent of the Ponce Railway & Light Co. and later promoted to general superintendent and manager.

In 1912 he was appointed secretary to Russell Robb and Henry G. Bradlee, members of the firm of Stone & Webster. Early in 1913 he was transferred to Cuba with the Lake Agriguanabo Co. In July, 1913 he was made superintendent of the Houghton County Electric Light Co. at Calumet, Mich.

In 1915 he was transferred to the El Paso Electric Railway Co. as superintendent. January, 1918 found him manager of the Cape Breton Electric Co., Ltd., of Sidney, Nova Scotia. In January of 1923 he was transferred to Fall River, Mass., where he was made vice-president and manager of the Fall River Gas Works Co. In April, 1931 he was transferred to the Puget Sound Power & Light Co. as division manager at Seattle. Later his headquarters were at Olympia, Wash.

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¶NePage McKenny Co., Seattle, has received a contract for installing 96 curb lights in the main street improvement district in Colfax, Wash. Bid price was $12,294.

¶R. E. Kenyon, formerly proprietor of Kenyon Electric Co., Oakland, has become affiliated with the Pacific Electric Motor Co., Tenth and Oak Sts., Oakland. Prior to entering business of his own, Mr. Kenyon was with the General Electric Co. He is a graduate of Oklahoma A. & M. College and an experienced electrical engineer.

¶C. C. Watters has been promoted to the position of chief clerk of the San Diego Consolidated Gas & Electric Co., San Diego. He has been a member of the company organization since 1927. Previous to that he was with the Southern Colorado Power Co., Pueblo, and with the former Western States Gas & Electric Co., at Stockton.

¶Gustav Keller has just been appointed assistant treasurer of the San Diego Consolidated Gas & Electric Co. by President William F. Raber. Mr. Keller joined the company in 1910 and has been connected with the bookkeeping and accounting department ever since.

¶Lt. J. S. Gorlinski, chief assistant in the office of the Army Engineers, Portland, Oregon District, has been appointed to be resident engineer on the Bonneville project on the Columbia River near Portland now under construction by the Army Engineers. He took up his residence at the dam site August 1.

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Trade Organizers

A. H. "Bill" Gudie (above) is a busy figure in trade organization activities in the electrical industry. An executive of the Biddle Trade Bureau, Los Angeles, his organization handles the detail and procedure for many electrical groups. "Bill" Gudie has had a long experience in electrical contracting circles, having been manager for associations in southern California for some time. Below is Sam Wiemer, in charge of Biddle Trade Bureau activities for electrical groups in San Diego. Mr. Wiemer was a contractor-dealer and was secretary and president of the San Diego association and has long been active in association affairs

De Veau Co. Opens San Francisco Branch

A. S. De Veau, manufacturers' representative, has announced the opening of offices and warehouse at 235 Ninth St., San Francisco, to supplement the facilities maintained in Los Angeles for the last few years.

Lines represented by the A. S. De Veau Co. include the Automatic Electric Manufacturing Co., of Mankato, Minn.; Bruno Laboratories broadcasting and sound recording equipment; Gardner Electric Manufacturing Co. transformers; Holyoke Co., Inc. insulated wire and flexible cords; the Newtype Automotive Division of The Okonite Co.; the Rodale Manufacturing Co. wiring devices and electrical specialties,

A. S. DE VEAU

and the Superior Manufacturing Co. line of insulated staples.

Mr. De Veau was the inventor of the De Veau automatic inter-talk telephone and the De Veau hospital and other signaling equipment. He sold this business prior to coming to California several years ago. Since that time he has operated as a manufacturers' representative.

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¶Ralph DeBadi has been appointed sales manager of the Parker Electrical Manufacturing Co., of Oakland, Calif., according to an announcement by P. J. DeBernardi, president of the organization. The company has announced a new cast-aluminum switch front for externally operated switches which has been designed by Mr. DeBernardi. These are manufactured in the company's own aluminum foundry in Oakland.

¶Oliver B. Lyman, San Francisco, has been appointed northern California representative for R. E. Uptegraff Mfg. Co., of Pittsburgh, Pa., manufacturers of a full line of transformers up to 333-kva. capacity. In addition to power and distribution transformers, the company manufactures potential transformers, current transformers, motor starting auto-transformers and motor starting reactors.

¶Leo Gross has changed the name of the company of which he is proprietor to Gross Electric Co., Denver, Colo. The organization was formerly known as the L. G. Electric Co. and caused some confusion in this form.

¶Contractors and their friends from San Francisco and all cities in the Bay area joined together for the annual picnic of the San Francisco Electrical Contractors Assn., Inc., held this year on Aug. 26 at Kendall-Dell resort near Mountain View, Calif. With a committee headed by Edward Dowd, of Dowd-Seid Electric Co., a day of games and races with surprises for numerous events and general get-together for the entire industry was held. Pictures and further details will be given next issue.

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¶Unusual orders are nothing out of the way at the Gardner Transformer Co.'s plant in Oakland. One of the most unusual recently came from a service station for gasoline near Kingman, Ariz., which wanted to tap the 44,000-volt power line for electric service to the station. A special transformer was built to step down the 44,000 volts to 110 volts, 5 kva. The arrangements were made in cooperation with the Public Utility Consolidated, of Kingman, Ariz. According to the transformer makers, the bushings on the transformer were half as big as the case.

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¶Joslyn Company of California has announced the removal of its district office to 969 Folsom St., San Francisco, where it has a new and more modern warehouse and office. H. H. Hoxie, manager, says that more complete stocks will be carried at this address.

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¶Allis-Chalmers Mfg. Co., announces the appointment of W. R. Judson as manager of the Salt Lake City district office, located in the Kearns Building. For the past three years Mr. Judson has been managing director of Allis-Chalmers (France), representing the Allis-Chalmers Mfg. Co. in Europe. Prior to that time, for thirteen years, he was manager of the company office at Santiago, Chile, covering Chile, Peru, and Bolivia. In Salt Lake Mr. Judson succeeds H. E. Weiss, who has been transferred to the company's office at Kansas City.

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¶Kelman Electric & Manufacturing Co., Los Angeles, has been awarded a $49,360 contract by the Los Angeles Bureau of Power & Light for circuit breakers.

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¶Licensing of the electrical contractors by the provincial government of British Columbia, as already enforced in some states in the United States, particularly in California, is being supported by the industry generally but opposed by the International Brotherhood of Electrical Workers of Vancouver, B.C. Adoption of the Dominion's electrical code, however, is supported by all groups.

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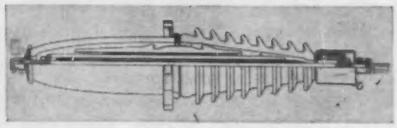
¶Corning Glass Co. has secured an order for three carloads of "Pyrex" suspension and pin-type insulators and suspension hardware from the United States Indian Service of the U. S. Department of Interior. The insulators will be used for line construction on the San Carlos project in Arizona.

New Devices » » »

to Use on that Next Job



Low-Voltage Bushings

Ohio Brass Co., Mansfield, Ohio, announces the development of a line of oil-filled apparatus bushings known as class "L" for voltages ranging from 69 kv. down to 7.5 kv. Designed to contribute to the refinement of low-voltage substation operation, the new bushings incorporate all of the major advantages of the large high-voltage O-B oil-filled bushings. They are filled with Transil oil. In place of the cement flange assembly no cement is used to hold the outer parts together but the entire bushing is placed in compression by means of a conductor tube which acts as a tension member throughout the bushing. Tension is then actuated by heavy steel springs. —Electrical West, Sept., 1934.

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Pole Line Specialties

Decatur Malleable Iron Co., Decatur, Ill., announces a new line of pole line specialties which are distributed by the Locke Insulator Corp. These include pole top fixtures in various styles for voltages ranging from 2,300 to 33,000 volts. Also included are wood pin brackets, ground wire clamps, transformer hangers and anchors.—Electrical West, Sept., 1934.

▼

Indicating Cutout

L. S. Brach Mfg. Corp., Newark, N.J., has announced a new line of porcelain plug and cartridge cutouts which have neon lamp indicators built in permanently. When a fuse blows, the neon lamp glows indicating its location. Inserting a new fuse puts out the light. The new line parallels the present line of plug and cartridge, 30-, and 60-- and 100-amp. porcelain cutouts and have identical mounting holes so as to be completely interchangeable.—Electrical West, Sept., 1934.

▼

Remote Control Switch

Electric Controller & Mfg. Co., Cleveland, Ohio, has announced a new vapor-proof and dust-tight, safety lock-out push button for use in connection with the remote control of automatic motor starters. It is designed for three-wire low-voltage protection installations where it is desired to start and stop a motor through its magnetically operated starter or controller from two or more push button control stations, at any one of which it may be desired to lock the push button in the "off" position to prevent operation of the motor-dirven machine— Electrical West, Sept., 1934.

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Baseduct Wiring Extensions

American Circular Loom Co., Inc., New York City, has placed on the market a new product known as "Baseduct" which is designed for extending existing outlets neatly and simply at a low material and labor cost. It accommodates two No. 14 wires which are laid in the duct and the cover snapped on. It is finished in a neutral brown or mahogany and can be changed easily to any color by one coat of quick drying enamel. — Electrical West, Sept., 1934.

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Precision Test Switch

Electrical Facilities, Ltd., Oakland, Calif., announces the Uni-snap test switch, a newly perfected, uniform action, precision timing switch intended primarily for use by metermen in the testing of watthour meters. This switch has identical, uniform snap action when switching both on and off.—Electrical West, Sept., 1934.

Electrode for Cast Iron

The Lincoln Electric Co., Cleveland, Ohio, has placed on the market "Ferro-weld," an electrode for welding cast iron. It is produced in one size only, ⅛ in. in 14-in. lengths. Its manufacture is limited to this size to insure its use with low heat for which it is particularly adaptable.—Electrical West, Sept., 1934.

▼

New Line Starter

The Electric Controller & Mfg. Co., Cleveland, Ohio, has added to its line of motor control equipment a type ZO weather-proof and dust-tight across-the-line motor starter. The starter is designed for motors up to 15 hp., 220 volts and 30 hp., 440-550 volts. They are enclosed in a case which has been bonderized and then black enameled. When desired, a self-contained ammeter in a dust-tight case can also be furnished. The starter is arranged for remote control, push button automatic operation. —Electrical West, Sept., 1934.

▼

Brush Seater

Ideal Commutator Dresser Co., Sycamore, Ill., has developed a brush seater for seating carbon, graphite or metal-composition brushes. It is a soft, slightly abrasive insulating material which in combination with the material removed from the brush gives the commutator or ring a high polish. Its use permits seating the brush under actual operating conditions without shutting down the machine.—Electrical West, Sept., 1934.

▼

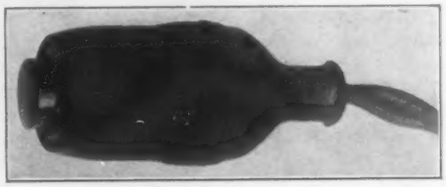
Relay for Photo Cells

Ward Leonard Electric Co., Mount Vernon, N.Y., announces a new sensitive relay especially adapted to photoelectric and similar applications where operation of the relay is dependent upon extremely low values of current. They are designed to operate on approximately 14 milliwatts. Where smaller gaps between contacts are permissible the relay can be adjusted to give positive operation on as low as 4 milliwatts. Detailed information on these relays is given in Bulletin No. 251.—Electrical West, Sept., 1934.

▼

Electric Steam Generators

Commonwealth Electric and Mfg. Co., Boston, Mass., announces a line of new miniature electric-heated steam generators in capacities ranging from 2 to 18 kw., equivalent to 6 to 54 lb. of steam per hour. They are designed for users of small amounts of processed steam and for laboratories. They are equipped with Chromolox heating units.—Electrical West.—Sept., 1934.



What's New?

Los Angeles to Vote Charter Amendments

Twenty-four proposed amendments to the Los Angeles city charter, embracing numerous changes in municipal administration and including the initial steps toward the acquisition by the municipal Department of Water and Power of the electric properties of the Los Angeles Gas and Electric Corp., have been approved by the city council for submission to the voters at a special election to be held September 27.

The proposed amendments are:

1—Advancing the date of the primary election from the first Tuesday in May to the first Tuesday in April and the date of the general municipal elections from the first Tuesday in June to the first Tuesday in May.

2—Providing for the granting of indeterminate franchises to transportation companies only, such as railways.

3—Providing for the granting of indeterminate franchises applicable to all types of private utilities.

4—Providing for the granting of 40-year gas franchises to gas companies, the city reserving the right to purchase the property of the franchise holder after 10 years.

5—Providing for a 5 per cent preferential on the purchase by the city of California goods and merchandise.

6—Providing for the city to pay the prevailing wage scale in accordance with state requirements.

7—Providing that no person shall be eligible for appointment unless he possesses the same residential qualifications required for nomination or election to such office.

8—Clarifies present recall provisions and requires recall petitions to be filed within a period of 90 days time from the time placed in circulation.

9—Removes from present charter all provisions pertaining to the Board of Education and school department.

10—Authorizing a charge of $1 fee to each person filing an application to take an open competitive civil service examination.

11—Civil service eligible lists established by promotional examinations shall expire at the end of two years.

12—Authorizing the chiefs of the police and fire departments to reduce or veto altogether sentences imposed on members of their departments by trial boards.

13—Prohibiting the levying of special assessments for the construction of elevated or subway railroads.

14—Authorizing the Department of Water and Power to repay loans from the government over a twenty instead of a ten-year period.

15—Delegating authority to the Department of Water and Power to draft rules to conform with NRA regulations in the matter of labor and the letting of contracts.

16—Empowering the Department of Water and Power to borrow from the state or Federal government to acquire the electric properties of the Los Angeles Gas and Electric Corp.

17—Authorizing the department to take over a part of the outstanding bonded indebtedness of the same corporation.

18—Authorizing the department to retain all employees of the corporation in their respective capacities without regard to civil service requirements.

19—Authorizing the letting of contracts to the most responsible contractor, rather than to the one who submits the lowest bid.

20—Permitting contracts with concerns in which city officials own 3 per cent of stock or less.

21—Permitting sale of excess power from Boulder Dam to private power companies in the first four years after completion of the project when such an excess is expected to prevail.

22—Authorizing the Department of Water and Power to prepare budgets to cover a three-year period, instead of drafting such budgets annually.

23—Permitting clarification of the city charter by correcting cross references.

24—Granting jurisdiction of the Board of Mechanical Engineers over refrigeration and steam power vessels.

▼

Six Companies to Build Parker Dam

Low bid for the contract for construction of the Parker Dam on the Colorado River as a unit of the Metropolitan Water District of Southern California system was submitted by the Six Companies, Inc., builders of Boulder Dam. Bids were opened at the office of the United States Bureau of Reclamation. The Six Companies, Inc., bid, for construction of the diversion dam and diversion tunnels, totaled $4,239,834. The only other bidder on the entire job was the Southwestern Contracting Group, Inc., with a bid of $5,496,073. There were two other bids for construction of the diversion tunnels alone, one by the West Construction Company for $887,910, the other by S. S. Magaffin Company, Inc., for $948,117.

With rights of way, appurtenent structures and power plant, Parker Dam construction cost will be approximately $13,000,000. The site is approximately 150 miles downstream from Boulder Dam. The reclamation service will build the dam with funds furnished by the Metropolitan Water District.

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¶Dr. John R. Haynes, for the past thirteen years a member of the Los Angeles Water and Power Commission, has been re-elected president of the commission. Commissioner A. F. Southwick was re-elected vice-president.

Spokane Levies 3% Tax on Power Company

Despite protests of business men the Spokane city council has passed an ordinance levying a special 3 per cent tax on the gross revenues of the Washington Water Power Co., Home Telephone and Telegraph Co. and Central Heating Co.; a 1½ per cent tax on the gross revenues of the Spokane United Railways and a 1 per cent tax on the gross revenues of the Spokane Gas and Fuel Co. The new tax ordinance is to take effect October 1.

It is estimated the new taxes would bring $150,000 to the city annually and it is reported a portion of it will be used to restore a 10 per cent pay cut for city employees. Business men protesting the taxes urged reduction of expenditures instead of the levying of additional taxes, and speakers pointed out that similar taxes might soon be assessed against other lines of business.

Frank T. Post, president of the Washington Water Power Co., Spokane United Railways and Central Heating Co., served notice on the city commissioners that he would take the measure to the supreme court to determine if there is a limit to the city's powers to tax a corporation. He will also attack the ordinance on the ground of discrimination, double taxation and abuse of authority. Mr. Post said later he planned a second suit on behalf of the Spokane United Railways in which he will allege that the proposed utility tax is a violation of the voter-approved agreement with the city in 1932 prior to the consolidation of the two street car lines operating in the city at that time.

▼

P. G. & E. Charged With NRA Violation

Pacific Gas and Electric Company has been charged with violation of the President's reemployment agreement under the NRA by the San Francisco Regional Labor Board for the dismissal of three employees in the Sacramento district for alleged activities in the International Brotherhood of Electrical Workers.

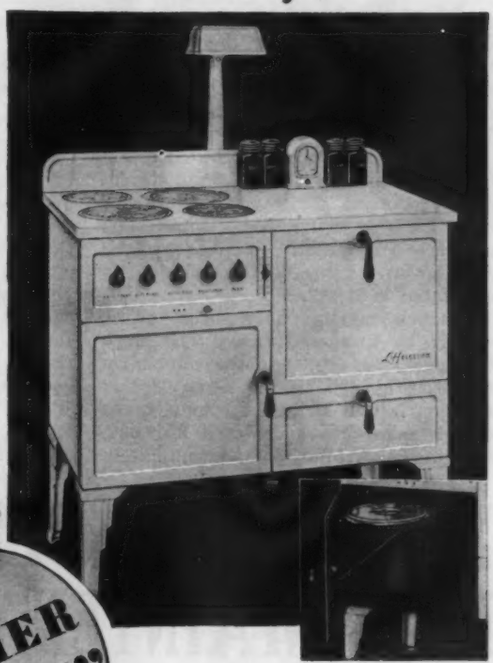
In a decision concurred in by four out of five members of a nine-member board who heard the case, the charge was made that the employees "were discriminated against and discharged primarily" for union activities. The decision says the employees "should be reinstated in their former positions by the company upon their making formal application for reemployment."

The company refused to take the employees back on the contention that the board was without jurisdiction in the case. Following the company's action the Federated Trades Council of Sacramento has appealed the case to the National Labor Board in Washington, D.C.

Hearings on the case have been under way since July 2, with testimony being presented by the employees, the union and the company.

4 REASONS Why

there's
PROFIT
OPPORTUNITY
in the . .



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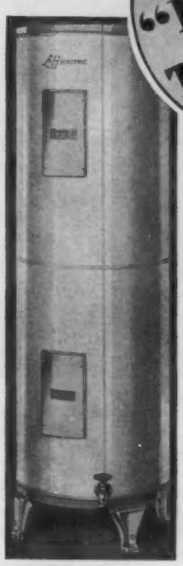
ELECTRIC RANGE



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WATER HEATERS
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Side Arm Types

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2. **Correctly Stepped-Up Line** means faster turnover . . minimum investment.
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4. **Factory Co-operation** makes the L&H franchise *profit* producing.

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Washington News

As it was found desirable to adopt many of the changes suggested in the power and rate questionnaires of the Federal Power Commission, their distribution was delayed so that they might go out in the most desirable possible form. Mailing of the questionnaires now has begun. Practically the entire staff engaged in the power survey is now in the field. All members of the force have been instructed, whenever at all possible as an incident to their other work, to assist power companies by explaining any part of the questionnaire which may not be thoroughly understood.

Thomas R. Tate, director of the power survey, will spend the remainder of the summer in the field, as will Percy H. Thomas, chief of the power requirements division, and Eric A. Nees, chief of the power resources division. Mr. Thomas and his men expect to pay particular attention to a study of possible development of the industrial load in various areas. The first stage of the power survey which involved the preliminary study of the various phases it will cover, has been completed. The survey now enters its second stage in which the data will be compiled upon which the final report will be based.

▼

TVA Expands

An extension of the Tennessee Valley Authority's plan for financing electrical equipment to include localities outside of the Tennessee Valley is expected, it was announced at the TVA Washington office. The authority has received several requests from operators of municipal plants to allow the extension to their cities of the easy payment plan in effect in the Tennessee Valley. TVA, however, probably will not limit the extension of that service to publicly-owned plants. If it is found feasible to expand it preference would be given localities having the lowest rates.

In his report to the President's Executive Council, Arthur E. Morgan, head of the Tennessee Valley Authority, reports that 1,953 families have been enrolled in Tennessee Valley associated cooperatives and that 3,750 more are expected to join before the end of the year. Four new projects are awaiting approval which will provide opportunities for 2,150 additional families. The cooperatives engage in canning, flour grinding, handicraft textiles, and seed potato cultivation.

The government has advanced $300,000 thus far, only a part of which has been allocated. Mr. Morgan also reports that the TVA has paid the state of Alabama $40,000, representing its 5 per cent of the gross proceeds of power sales. The Tennessee Electric Power Co., Mr. Morgan states, has sold 6,700 refrigerators, ranges and water heaters in ten weeks, one-fourth of total sales during the preceding twelve years.

Sacramento Starts Power System Survey

Directors of the Sacramento Municipal Utility District have closed a contract with Burns & McDonnell, consulting engineers of Kansas City, for the preparation of an estimate of the cost of constructing a complete power system to serve the district. In addition, a second contract was closed with the engineering firm of Ford, Bacon & Davis to act in an advisory capacity to the district and to check the Burns & McDonnell estimate.

The contract calls for the completion of the survey and estimate by Sept. 20 so as to give sufficient time to place a bond election before the voters on Nov. 6. Directors declared that the estimate would make possible direct negotiations with the Pacific Gas and Electric Co. for the purchase of the present system without the necessity of proceeding with a valuation case before the California State Railroad Commission.

Included in the survey will be estimates of the cost of constructing a transmission and distribution system as well as steam, diesel and hydro plants or a combination of the three. Load, revenue and operating expenses also will be estimated.

The contracts call for the payment of $13,500 to Burns & McDonnell and $4,000 to Ford, Bacon & Davis.

▼

Puget Sound Valuation Case Postponed to 1935

Washington Department of Public Works officials have abandoned all hope of opening its hearings in the Puget Sound Power & Light Co. power rate and valuation investigation this year. This decision was made by E. K. Murray, director of the department, after representatives of the company appeared to report progress on an inventory being conducted as a part of the case.

Originally hearings were to be conducted this fall but Director Murray now states this is impossible, placing the probable time as May, 1935. The power company had asked the department to defer further prosecution of the case until there has been a material improvement in general conditions and until the business and earnings of the utility justify a continuation of the proceedings. The plea to the department in behalf of the power company was made by S. P. MacFadden, vice-president, who supported his contentions by stating that the inventory cost would be $219,414 and presentation and defense would bring an additional expense of $368,343. He also quoted Chief Engineer Carey as estimating the state's cost of prosecuting the investigation at $134,548, bringing the total to $722,305.

H. F. Cleland, attorney for the Puget Sound Power & Light Co., declared that the records showed that electric rates in the State of Washington were the lowest in the United States and therefore an expensive investigation should not be necessary. "We are appalled at the situation that confronts this company today," Mr. Cleland said. "Taxes have increased $508,000; NRA has added $145,000, and regulatory expenses this year will amount to $314,000. And the records show that this company is not earning a fair return after paying the new taxes and extraordinary costs."

▼

Puget Sound Reports Gain in Customers

At the close of the second quarter of 1934, Puget Sound Power & Light Co. was serving 163,109 customers, the greatest number ever reported and an increase of 5,366 during the preceding twelve months, according to a financial report made by F. W. Brownell, treasurer. Gross revenues for June showed a 7 per cent increase over June, 1933.

The financial status of the company has been improved, Mr. Brownell stated, by the payment of $700,000 of maturing bank loans reducing that kind of obligation to an even million dollars. In the past seven months debt reduction has amounted to $1,412,000.

Financial gains have been offset mostly by increased taxes. The state has added $8,000,000 to the company's valuation as a basis for taxes. If this addition is upheld by the courts, taxes would take an additional $200,000, bringing the total to approximately $2,000,000, as compared to a gross income of less than $13,000,000.

▼

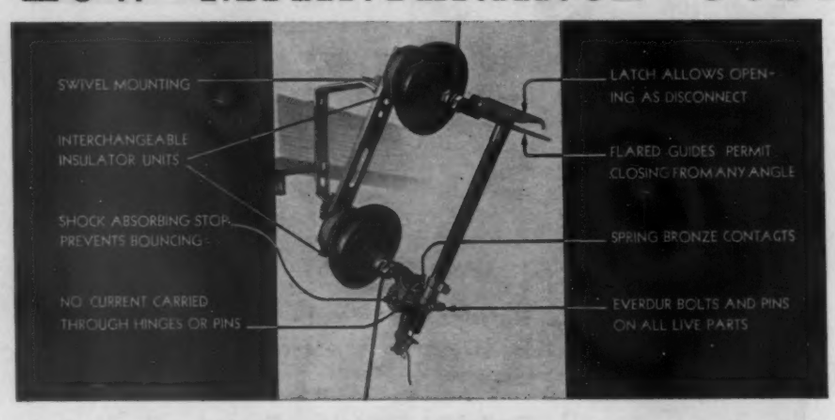
Last Details Complete for Inspector Conventions

Both the Northwestern and Southwestern Sections of the International Assn. of Electrical Inspectors have completed final arrangements for their annual convention, the first since 1932. Last year all geographical sections passed up their own conventions in favor of the national convention at the Century of Progress exposition. Portland will be host to the Northwestern Section Sept. 17 to 19; Sacramento to the Sounthwestern Section, Sept. 24 to 26.

National speakers who will address both conventions will include W. J. Mahan, national president, L.A.E.I.; Victor H. Tousley, national secretary; Arthur L. Abbott, and W. J. Canada, of the uniform legislation department of National Electrical Manufacturers' Assn.; A. Penn Denton, Rigid Steel Conduit Assn.

President A. M. McLean, of the Northwestern Section, and Fred D. Weber, secretary, have extended invitations to the entire membership of the Southwestern Section to attend its convention, and President Karl J. Bickel, and Secretary Claude W. Mitchell have done likewise for the latter section.

BUILT FOR PERMANENT LOW MAINTENANCE COST


SWIVEL MOUNTING
INTERCHANGEABLE INSULATOR UNITS
SHOCK ABSORBING STOP PREVENTS BOUNCING
NO CURRENT CARRIED THROUGH HINGES OR PINS
LATCH ALLOWS OPENING AS DISCONNECT
FLARED GUIDES PERMIT CLOSING FROM ANY ANGLE
SPRING BRONZE CONTACTS
EVERDUR BOLTS AND PINS ON ALL LIVE PARTS

RATINGS — Pacific Type ES-3 drop-out fuse switches—for distribution circuits of 15,000 volts and below. Three sizes: 5000, 7500/12,500Y, and 15,000 volts; all rated at 100 amperes. MOUNTING—Adjustable hanger fits wood crossarms from 3½" to 5½" square. OPERATION — When the fuse blows, fuse holder automatically

DROP-OUT FUSE SWITCH

drops to horizontal position — a visual indication that the circuit is open. Action is simple and positive. A shock absorbing stop brings the holder to its final position without bouncing or jar to the fuse mounting. Distinctive features are indicated above. . . . For full particulars WRITE FOR BULLETIN NO. 43.

PACIFIC ELECTRIC MANUFACTURING CORP.

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I-20 METERING ASSURES FLEXIBILITY

to Meet Every Installation Requirement Economically

THIS IS THE I-20A METER
—a standard meter unit with many new and improved features, such as a weatherproof die-cast base and a strong, corrosion-resisting sealing arrangement. Pull box and cover (not shown) permit conduit or tamper-proof-cable wiring.

THIS IS THE I-20B METER
—identical with Type I-20A except that all the necessary facilities for disconnecting, reconnecting, and testing are included under the terminal cover. Pull box and cover (not shown) permit conduit or tamper-proof-cable wiring.

THIS IS THE I-20C METER
—a completely armored, fully protected meter unit. It is identical with I-20B except for the connection block and protector case. Ideal for indoor or outdoor installation, with conduit or tamper-proof-cable wiring.

THIS IS THE I-20S METER
—a socket or plug-in type for indoor or outdoor installation, with conduit or tamper-proof-cable wiring.

ACCURACY

to Meet Every Variation in Load, Temperature, Voltage, Frequency, Wave Form, and Power-factor

A very significant feature of the I-20 meter is its long-range accuracy. Even at 300-per-cent load, the departure from 100-per-cent registration is almost negligible. This remarkable result has been attained without any sacrifice of torque. Therein is your assurance that light loads will also be recorded faithfully through years of service. Moreover, high torque has not been sacrificed to obtain accuracy under variable service conditions such as voltage, frequency, wave form, and power-factor. Temperature errors are minimized by a temperature-compensated magnet. Ask your G-E representative, or address General Electric, Dept. 6L-201, Schenectady, New York.

400-4

GENERAL ELECTRIC

PERFECTION OF DETAIL

G-E DISTRIBUTION TRANSFORMERS

Insist ON "PERFECTION OF DETAIL"

General Electric distribution transformers are the crystallized concentrate of forty-eight years of transformer engineering. They are built for those who appreciate the vital importance of the transformer in secondary distribution, and who therefore specify the best.

NRA MEMBER U.S. WE DO OUR PART

300-5

GENERAL ELECTRIC

N. B. Hinson Appointed Edison Chief Engineer

Announcement of personnel changes in the Southern California Edison Co., Ltd., following the death of Herbert A. Barre, chief engineer, has been made by Fred B. Lewis, vice-president and general manager.

N. B. Hinson, formerly assistant manager of operation, has been appointed chief engineer and chairman of

N. B. HINSON

the engineering committee, succeeding Mr. Barre. Mr. Hinson became a member of the Edison organization in 1906 as a test man in the Los Angeles test department. After serving in various capacities, he was made distribution engineer in 1913 and planning engineer in 1923. He was appointed assistant manager of operation in 1928.

R. G. Boyles, formerly superintendent of distribution, has been appointed assistant manager of operation, succeeding Mr. Hinson. Mr. Boyles entered the service of the company in 1906 as a service man in the Monrovia district. He became superintendent of distribution in 1926.

J. F. Hodges, formerly assistant superintendent of distribution, succeeds Mr. Boyles as superintendent of distribution. Mr. Hodges became a member of the company organization in 1905 as a district foreman in the Porterville district. He was made a division superintendent in 1925 and was appointed assistant superintendent of distribution in 1928.

▼

¶Leon O. Whitsell, member of the California State Railroad Commission since July, 1925, and president of that body in 1928, has again been elected to the presidency, succeeding Clyde L. Seavey who resigned August 15 to become a member of the Federal Power Commission. Mr. Whitsell is a native of Iowa and prior to coming to California practiced law in Idaho. Before being appointed to the Railroad Commission he was a member of the Orange County board of supervisors and president of the Orange County Chamber of Commerce.

▼

¶Modesto Irrigation District, Modesto, Calif., has received a $225,000 loan and grant from the latest allotment of PWA funds, of which $60,000 will be spent for the erection of a second circuit on the district's transmission line from Don Pedro Power House to receiving station A.

Chromalox Super-Speed

Range Replacement "Top Burners"

Sizes to fit all makes of Electric Ranges

Makes old ranges cook as fast as latest 1934 models

EDWIN L. WIEGAND CO.
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Quick Shipments from Direct Factory Representatives in the West

MONTGOMERY BROTHERS,
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THE PETERSON COMPANY,
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"SIGHT-CRAFT" *Means More Than* LIGHTING

The State of California Motor Vehicle Department

It means planned lighting with luminaires designed for efficient work. Its even distribution of light eliminates shadows and glare. The effect is pleasing and eye strain is eliminated as daylight standards are approached.

..Lessens "Eye Fatigue"

The installation above shows the newly lighted offices of the Motor Vehicle Department in Los Angeles. Workers will get 60% more "seeing efficiency." More work will be done—fewer mistakes—and less hours lost through causes due to eye strain. 102 "Sight-Craft" Apollo indirect lighting units were installed to make this possible. For convincing proof of the efficiency of indirect lighting.

"SIGHT CRAFT" Lighting units may be identified by the trademark shown below. It is the sign of Smoot-Holman Company and means the utmost in seeing efficiency. For any ligthing need look for this mark. Besides the unit shown here, there is a line for industrial, kitchen, garden, and general utility floodlighting.

SEND FOR CHART SHOWING RESULTS OF FERREE TEST FOR EYE EFFICIENCY

After three hours of work under various forms of lighting the eyes were only 10% efficient with direct lighting . . . 30% with semi-indirect . . . and increased to 90% with indirect lighting. Daylight itself produced only 94% efficiency under the same conditions.

SMOOT-HOLMAN COMPANY
SIGHT-CRAFT
INGLEWOOD CALIFORNIA
MADE IN U.S.A.

SMOOT - HOLMAN COMPANY

INGLEWOOD, California — 612 Howard St., SAN FRANCISCO

SEATTLE, J. Edwin Roberts, P. O. Box 3002

Sodium Vapor Lamps To Be Installed

Two test installations of 10,000-lumen General Electric sodium vapor lamps will be in operation in southern California by September 15. Both are on state highways, one in the city of Pasadena and the second near Duarte on the lines of the Southern California Edison Co.

The Pasadena system will consist of 15 units spaced 250 to 300 ft. apart extending three-quarters of a mile along Colorado Boulevard, one of the heavy traffic arteries of the city. Average weekday traffic is 1,000 cars per hour, with Sunday traffic approximately double this figure. The installation was designed by Eugene Bettanier, street lighting engineer, after B. F. DeLanty, superintendent of the Pasadena Light and Power Department had tested two of the new sodium vapor units.

In cooperation with Los Angeles County, the Southern California Edison Company will install ten units on a heavily traveled stretch of highway into which several important feeder roads converge. Spacing will be 300 ft. The power company will bear the expense of installing and maintaining the system and will keep careful records of quality of illumination, efficiency, cost of operation and maintenance and public reaction to this type of lighting.

WHERE TO BUY . . . IN THE WEST

Galvanized and Plain Pole Line Hardware — Cedar Poles — Douglas Fir Crossarms—Sauter Time Switches—Construction Tools

EVERYTHING FOR TRANSMISSION AND DISTRIBUTION LINES

OUR NAME MAYDWELL SPELLS QUALITY

MAYDWELL & HARTZELL Incorporated

KEARNEY FITALL FUSE LINK

No. 1 for ½-in. Buttonhead
No. 2 for Flat Terminal
No. 3 for ¾-in. Buttonhead

Triple terminal—spring feature on low amperages—all metal corrosion resistant—accurate performance—one link for all 15,000 volt expulsion or tension type cartridges.

Bulletin 312 Gives Complete Information

JAMES R. KEARNEY

LAPP Line Post Insulators

Lapp Line Post Insulators eliminate radio interference due to both dirt and electro-static conditions.

Write for Bulletin No. 112 describing and cataloging these insulators.

LAPP INSULATOR CO., INC. LE ROY, N. Y.

LOCUST PINS

. . . . . Oak Brackets *and* Pole Steps

Safety — Strength and Lasting Economy

LOCUST PIN CO., - - Front Royal, Va.

MAYDWELL & HARTZELL INCORPORATED

LOS ANGELES FACTORY DISTRIBUTORS SAN FRANCISCO

Power Commission Rules Against Pepco

Claims of $887,928 and $206,437 by the Portland General Electric Co. for interest during construction of the original Oak Grove power project on the Clackamas River in Oregon have been disallowed by the Federal Power Commission. The commission ruled that the cost of the project was $9,131,710, a reduction of $35,334 from the cost figures submitted by the company.

Two important points were involved in the case, according to the commission. They were the disallowing of interest claimed by the company and fixing 6 per cent as a fair rate during construction and determination of the period in which part of the initial investment in a power project could be carried in suspense. In the opinion written by Commissioner Draper, the commission ruled "that the theory that a proportion of the initial investment in a project should be carried in suspense after completion of the first unit until other project units are constructed, permitting interest to run on such unused capacity, is not in conformity with the federal power act and is unsound in principle."

▼

Test Insulators for Colorado River Line

Various types of insulators being considered for use on the 236 miles of 230,000-volt line which will carry power to the Colorado River Aqueduct pumping plants of the Metropolitan Water District were submitted to tests in the high tension laboratory of the California Institute of Technology during the past month. Charges up to 800,000 volts were used in the tests. The lines of the district will carry approximately 36 per cent of the output of the Boulder Dam plant.

Purpose of the tests was to determine the effect of weathering under desert conditions on the 8-ft. insulator strings. A quantity of insulators were allowed to weather for six months on Danby Dry Lake which will be crossed by the transmission lines, where they were subjected to the various kinds of salts and chemicals to be found in the desert country. They were then taken to the Caltech laboratory where they were subjected to "dry" and "wet" flashover tests, under the direction of J. C. Gaylord, chief electrical engineer for the district, and R. W. Sorensen, professor of electrical engineering.

▼

Expenditures totaling $449,760, initiated during August, involving additions and betterments to the Los Angeles municipal electrical system, have been approved by the city's Board of Water and Power Commissioners. Two major items in the schedule are an electrical distribution station and equipment, totaling $133,000, and additions and betterments to existing distribution stations, totaling $152,000.

Low Water Hazard at Pueblo Plant

Exceedingly low water in the Arkansas River on July 21 caused considerable concern to the engineers of the Southern Colorado Power Co., at Pueblo, Colo. The actual water flow at the company's intake below the Fourth St. bridge for its steam plant caused concern.

On account of the large amount of sand in the water the gate at the diversion dam was necessarily partly opened to allow some of the water and sand to go downstream so as not to fill the reservoir with sand. On Saturday the water level above the dam dropped to such a point that the water in the river channel adjacent to the power plant began to flow back into the new river channel. This was noticed in time to save the reservoir from being emptied and the water lost.

No shut down of the Pueblo plant was necessary, although had it been so the Canon City plant would have attempted to carry the load. On Sunday, July 22, rains in the upper country produced additional water and relieved the situation.

Wells are being dug on both sides of the river by the district, with the intention of installing electrically driven pumps to tap underground water for city water works. There is said to be some likelihood that these wells will be operated permanently to provide a supply of clear filtered water instead of attempting to settle the usually muddy water from the Arkansas River.

▼

To Test Power Policy of Irrigation District

Constitutionality of various acts of the California State Legislature creating the Imperial Irrigation District and authorizing the officials of that district to construct and operate works for the generation of electrical energy and the sale thereof have been attacked in a suit in equity filed in the Federal District Court in Los Angeles by the Nev-Cal Electric Securities Co., a Nevada corporation.

In its complaint the plaintiff points out that it is the owner of several tracts of land in the irrigation district and complains that under the land assessment and improvement features of the acts creating the district and authorizing the generation of electrical energy from the Colorado River the assessments would be confiscatory in character and would deprive the plaintiff of its property without due process of law.

The complaint points out further that the district already is supplied with ample electrical energy by the Southern Sierras Power Co. at reasonable rates and that for the district to proceed with its plans to construct power generating plants in cities in the district would be imposing an unfair and burdensome competition upon the corporation in selling its power. The suit requests the court to issue both temporary and permanent writs of injunction restraining the district from proceeding with its power program.

▼

L. A. Bureau to Change To 60 Cycle Service

With the completion of Hoover Dam, service of the Los Angeles Bureau of Power and Light will be changed from 55 to 60 cycles and the city will pay the cost of converting consumer equipment to the new frequency. E. F. Scattergood, general manager and chief electrical engineer of the bureau, made this statement to the directors of the Metropolitan Water District on Aug. 10.

He was asked to explain the plans of the bureau so that the district directors might decide upon the frequency of the power to be used at its pumping stations along the Colorado aqueduct. The bureau has contracted to generate power for the district at Hoover Dam as well as for several smaller municipalities which have contracted for power from that source.

Decision of the bureau to cut over to 60 cycles will affect the Pasadena, Glendale and Burbank municipal systems. In the case of the latter two no decision has been reached as to whether or not they will follow the 60-cycle program.

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V. H. Greisser, W.W.P. Co. Engineer, Dies

Victor H. Greisser, former chief engineer for the Washington Water Power Co., died August 20 at his home in Menlo Park, Calif., following an illness of several years duration. He was 56 years old and before going to California had resided in Spokane since 1906.

Mr. Greisser was born November 4, 1874, in Morton, Illinois. He took up the profession of electrical engineering, starting with the Northern Electric Co. at Madison, Wis., where he spent three years studying electrical engineering at the University of Wisconsin. Later he worked for the National Electric Co. at Milwaukee.

He entered the employ of the Washington Water Power Co. May 29, 1906 in the engineering department and his first work was as electrical foreman in the construction of the Post Falls power station. Upon completion of the first unit he returned to Spokane and for the next five years was engaged in electrical designing work. In 1912 Mr. Greisser was made electrical engineer and on February 15, 1920, he was appointed chief engineer, serving in that capacity until last October when his health necessitated moving to California, at which time he was made consulting engineer for the company. As chief engineer Mr. Greisser had charge of all construction work, which included construction of the Upper falls power station, additions to the Long Lake and Oroville power stations and construction of the Chelan power station, as well as construction of transmission systems.

Mr. Greisser was a member of the American Society of Civil Engineers, American Institute of Electrical Engineers, American Society of Mechanical Engineers, Associated Engineers of Spokane, Spokane City Club and Sigma Tau, honorary engineering fraternity.

▼

¶Installation of a new flood lighting system in Con Jones Athletic Park at Vancouver, B.C., will be proceeded with immediately. A very elaborate system was installed in this park about two years ago, but was lost in the fire which completely destroyed the grand stand and major portion of the park buildings recently. Engineers of the Canadian General Electric Co., Ltd. at Vancouver are now working on a more advanced design of a new flood light system.

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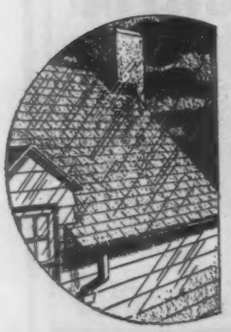

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THE MANUFACTURERS' DIRECTORY

¶In these pages is a directory of electrical manufacturers, their Western offices and Western representatives—a valuable source of buying information to the subscribers of ELECTRICAL WEST. It is as accurate and complete as the publishers could make it; no charge is made for a listing and every manufacturer operating in this territory is privileged to be included. ELECTRICAL WEST does not guarantee the information, however, and assumes no responsibility for errors or omissions. Subscribers are respectfully requested to notify the publishers of any corrections or additions that should be made.

¶Under each manufacturer are listed the Western branch offices or representatives. Where such information is not listed, the manufacturer has no representation in the territory or has reported none. If the distribution of a product is through wholesalers only, this also is indicated. To use the directory, find the manufacturer's listing and call upon the nearest branch office or agent. If the name of the manufacturer is not known, turn to the "Where to Buy It in the West" guide immediately following and look under the name of the product in which you are interested.

A-A ELEC. MFG. CO., THE, Bridgeport, Conn.—Alexander W. Bromberg, Los Angeles.

ABOLITE REFLECTOR CO., West Lafayette, O.—Jos. Paulson, Portland; Myers & Schwartz, San Francisco; W. E. Welborne, Los Angeles; W. E. Young, Denver.

ADVANCE BATTERY CORP., Brooklyn, N.Y.,—G. C. Maudslay, Los Angeles.

AIR PREHEATER CORP., THE, Wellsville, N. Y.—R. E. Chase & Co., Seattle, Tacoma; F. J. Hearty, San Francisco; W. Z. Harrison & Co., Salt Lake City; Joy & Cox., Inc., Denver.

AIRWAY ELECTRIC APPLIANCE CORP., Toledo, Ohio.—Montgomery Bros., Seattle, San Francisco, Los Angeles.

ALLEN CO., INC., L. B., Chicago, Ill.—H. B. Squires Co., San Francisco, Los Angeles, Seattle.

ALLEN BRADLEY CO., Milwaukee, Wis.—Garland-Affolter Eng. Corp., Seattle, San Francisco; Zinsmeyer, Inc., Los Angeles; Peterson Co., Denver.

ALLIANCE MFG. CO., Alliance, O.—D. L. Herman, Seattle; Gillan Sales Co., San Francisco, Los Angeles.

ALLIS-CHALMERS MFG. CO., Milwaukee, Wis.—District Offices: Seattle, Portland, San Francisco, Los Angeles, Denver, Phoenix, Salt Lake City.

ALLIS CO., THE LOUIS, Milwaukee, Wis.—Three Engineers Co., Seattle; A. H. Contes Co., San Francisco; Sterling Elec. Motors, Inc., Los Angeles; O. H. Davidson Equip. Co., Denver; C. F. Cate, Albuquerque.

ALLOVER MFG. CO., Racine, Wis.—Kemp Cutlery Co., Portland.

ALL-STEEL-EQUIP. CO., Aurora, Ill.—I. P. Bean, Seattle; Jas. J. Noble, San Francisco; W. S. Sweet, Los Angeles.

ALPHADUCT CO., Jersey City, N. J.—Garnett Young & Co., Seattle, Portland, San Francisco, Los Angeles.

ALTORFER BROS. CO., Peoria, Ill.—E. P. Becker, Pacific Coast Mgr., Los Angeles. Wholesalers.

ALUMINUM CO. OF AMERICA, Pittsburgh, Pa. — Branch offices: San Francisco, Los Angeles.

AMERICAN BLOWER CORP., Detroit, Mich.—Branch Offices: Seattle, Tacoma, Portland, San Francisco, Los Angeles, Salt Lake City, Denver.

AMERICAN BRAIDING CO., Holyoke, Mass.—Keeler White Co., San Francisco.

AMERICAN CIRCULAR LOOM CO., INC., New York City—C. R. Dederick, Portland,; Utilities Supply Co., Los Angeles; Paul A. Douden, Denver.

AMERICAN CROSSARM & CONDUIT CO., Chicago, Ill.—Tidewater Crossarm & Conduit Co., H. B. Pearne, Western Dist. Mgr., Chehalis, Tacoma.

AMERICAN ELEC'L HEATER CO., Detroit, Mich.—R. G. Ellis, Los Angeles; O. F. Nats, Denver.

AMERICAN ELECTRIC SWITCH CORP., THE, Minerva, O.— Irving P. Bean, Seattle; Thos. D. Noble Co., San Francisco; J. G. Kirkpatrick, Los Angeles; Laughlin Sales Co., Denver.

AMERICAN FOUNDRY EQUIPMENT CO., Mishawaka, Ind.—Fred W. Carlson, Seattle; E. I. Rodgers, San Francisco; R. H. Maples, Los Angeles.

AMERICAN LAFRANCE & FOAMITE IND., INC., Elmira, N. Y.—Branch Offices: Seattle, San Francisco, Los Angeles, Denver, Houston.

AMERICAN STEEL PIPE SALES CO., Irvington, N. J.—A. W. Bromberg, San Francisco, Los Angeles.

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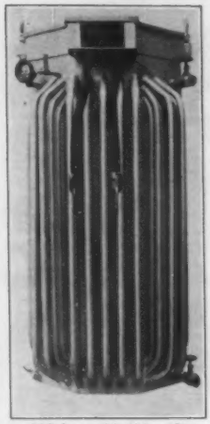

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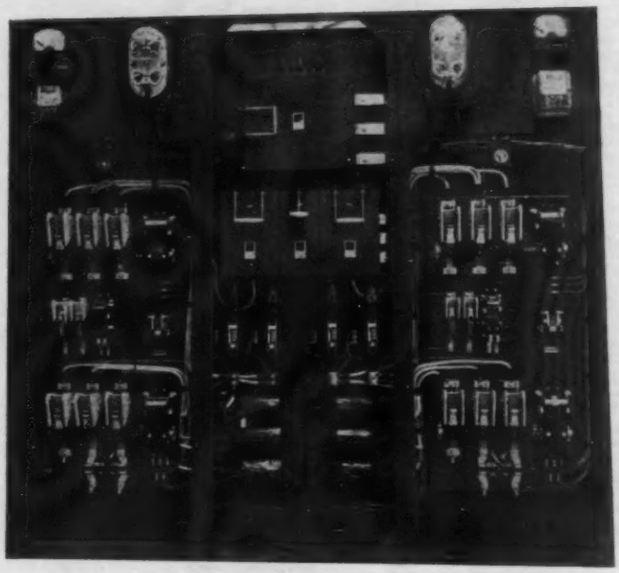

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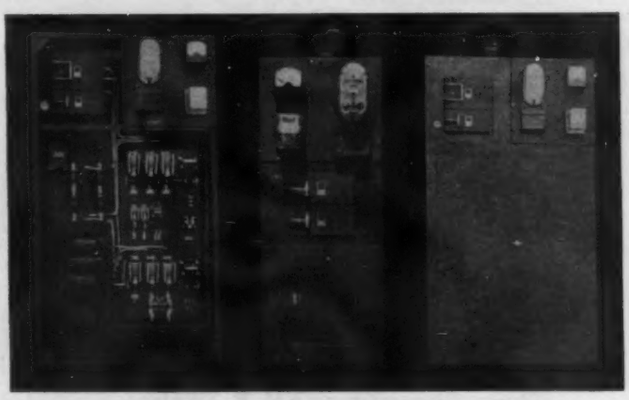

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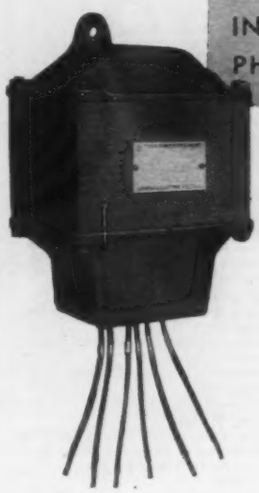

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Fences

IN these heydays of association up-building under the wings of the Blue Eagle, it is timely that a warning, born of ages of human experience, be sounded for the good of the industry as a whole. What is known to the trade as a "high board fence" will not stand permanently. The consumer won't let it.

With the sincerest of motives, and in order to benefit the majority in any given group who wants to and does play the game of business fairly, many a tight association set-up is devised. It operates nicely and effectively by employing any of a number of schemes and the customer is virtually directed as to where and from whom to buy. Seemingly all is a bed of roses, except that a fundamental of business is blanked out by the boards of the high fence. This fundamental is that business exists for the customer, and not that the customer exists for business.

For as surely as the customer is blocked in his free choice of firms with which to do his business, he finds a substitute, or worse yet, he organizes his much greater numbers to batter down the boards of the fence. Even government sanction and support will not then prevent the complete collapse of the entire protective barricade.

So close knit, so inter-related is this electrical industry, that, like it or not, no one group in it can hazard the remainder of the industry for its own selfish protection. How much better to build the association on values that increase its usefulness and worth to the customer, that strengthen its members in individual responsibility and courageous ethics. Good neighbors do not need a fence—they respect each other's rights.

▼

New Deal or Raw Deal

"WHETHER on state-owned or Federal-owned power sites, private capital should be given the first opportunity to transmit and distribute electricity on the basis of the best service and the lowest rates to give a reasonable profit." Thus spoke Mr. Roosevelt in Portland, Ore., in 1932 a few short weeks before election.

"We cannot have too much power and the power that we are developing is going to be controlled by the government for all time." Two years later Mr. Roosevelt announced this mandate at Bonneville, 30 miles east of Portland.

During the intervening months between these two speeches, a New Deal for American industry and the American people has been unfolded. This New Deal was built around the theory that America suffered from over-production; hence excess capacity in industry must be discouraged, lands must be taken out of production, capital must not be put into fields already overbuilt, ruthless competition must be restrained. To all of this, there must be one exception:

The light and power industry of the nation should have a "yardstick." Notwithstanding the fact that the generating facilities of the power industry were more than ample to meet the demands for electricity, upwards of a billion dollars of tax money is being poured into Federal-financed power projects in an idealistic program of duplication, cutthroat competition and waste.

From Mr. Roosevelt himself should come a statement in explanation of this switch in policy. The light and power industry and the millions of investors in its securities deserve that much consideration at least. Such a statement should answer these questions:

Why is power as a commodity exempt from all the rules that the New Deal applies to other industries and businesses? Where are the markets for the energy to be generated at the several Federal projects? If new markets are not available, will this power ruthlessly compete for business now served by the existing utilities? Will these yardsticks be a full 36 inches long, or will costs be charged to presumptive benefits to navigation, flood control or irrigation and losses be made up from taxes? Is the policy of predatory rapacity as practiced at Knoxville to be followed by other governmental power agencies?

Unless these questions are answered satisfactorily, the millions of people who have invested their savings directly or indirectly in the utilities can reach but one conclusion: The New Deal for the power business is an exceedingly Raw Deal.

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Established 1887

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E. A. S. Electric Refrigerator Campaign Increased Unit Sales Over May, 1933 **101%**

NOW

The ELECTRIC APPLIANCE SOCIETY'S WASHER AND IRONER CAMPAIGN

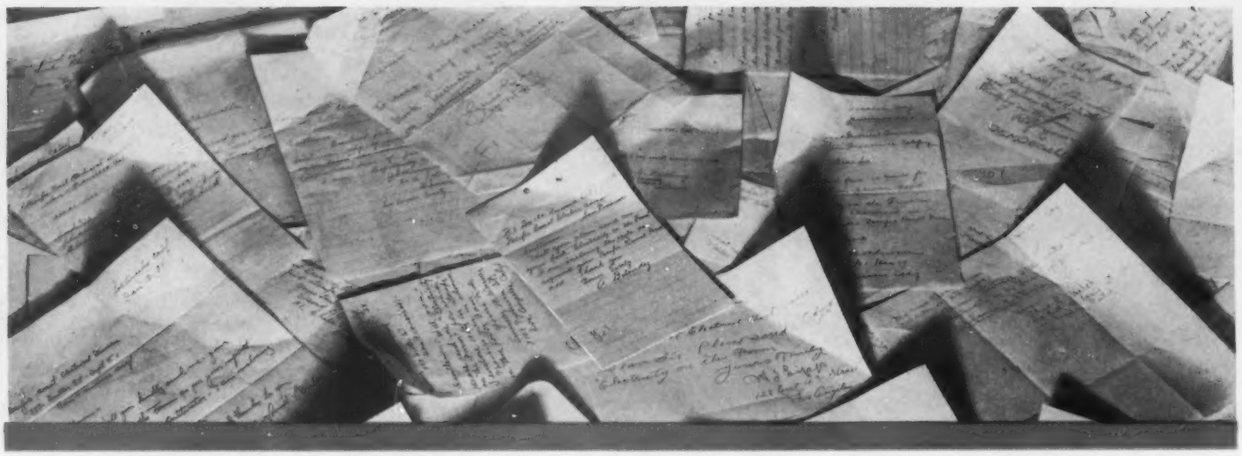
September 1-30

The campaign has just started! There's still time to get in! The entire program is outlined in the Society's broadside . . . what will appear over the E. A. S. signature and what the P. G. and E. is doing on its own account to help the campaign along. If you're not all prepared and ready to go, visit our local office immediately. Or get in touch with the Electric Appliance Society, 180 New Montgomery St., San Francisco. And do it now! An unprecedented amount of sales promotion is behind this drive and it fairly begs to be synchronized with your own merchandising program. Be among those who, on September 30, will look back on a record breaking month of Washer and Ironer sales. It **can** be done! No one who watched the Society's first two campaigns could doubt that. And **you** can do it, so don't put off the job another day.

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

Owned · Operated · Managed by Californians



Want to be introduced to these LIVE prospects?

Hundreds of prospects for electrical products and services write the Bureau every month. Here's how to make sales to your share of this ready-to-buy market.

THEY write asking what electric range or refrigerator they should buy. They ask for wiring plans.

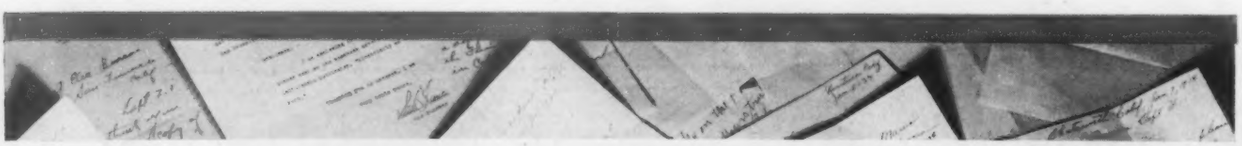
Some are interested in farm electrification. Others in outdoor lighting. Big job-prospects unburden their industrial and school lighting problems to us. Some want information about oil drilling and pumping.

Hundreds of such letters—most of them from people now ready to buy—come into the Bureau every month. A steady stream flows from the Pacific Coast Electrical Bureau's advertising campaigns in fifteen publications reaching home, farm, commercial and industrial fields.

A prompt reply goes to the inquirer; and his name is then referred to some local firm that can be of service to him. If you can use such leads, and aren't now getting them, write us at once. Ask to be placed on our regular SALES LEADS MAILING LIST.

PACIFIC COAST ELECTRICAL BUREAU

447 Sutter Street
San Francisco

(Department N-9)

601 W. 5th Street
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